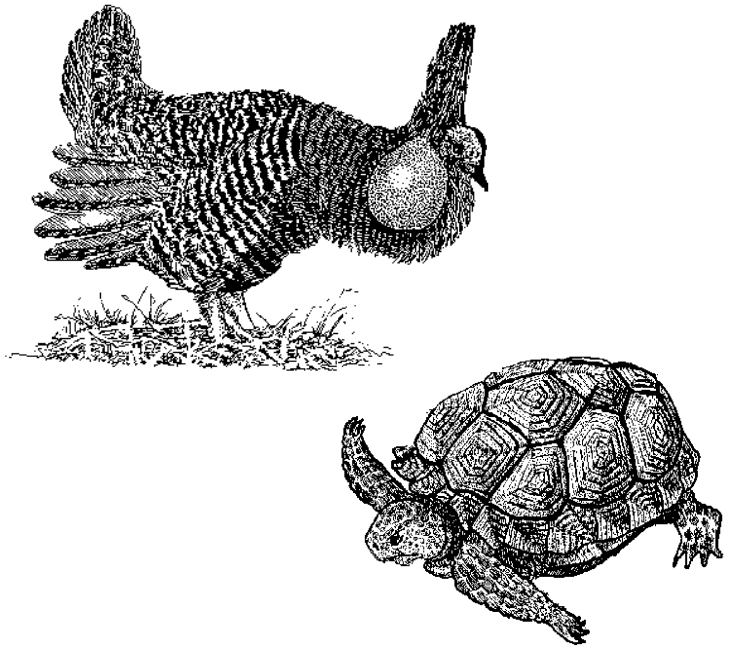


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# **Wildlife Funding/Policy Linkages: Using State Wildlife Action Plan Priorities to Shape Policies and Direct Expenditures at Multiple Levels of Government**



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## **Abstract**

Because collaboration is often critically important to the success of efforts to implement the State Wildlife Action Plans (SWAPs), we studied existing collaborative SWAP implementation efforts to identify factors that contributed to their success. We documented 144 collaborative SWAP implementation efforts throughout the U.S. and selected six of these for intensive case studies.

Through a model of the conservation process, we depict the factors that contribute to collaborative SWAP implementation: funding, labor, information, legitimization, coordination, agreement, dialogue, and relationships. This model can be used to identify possible objectives of collaborative SWAP implementation and develop strategies to make implementation successful. About half of the 144 efforts we documented focused on achieving on-the-ground conservation outcomes – either habitat and species restoration (38%) or land protection (13%). More than one-third of all cases focused primarily on generating resources for SWAP implementation – information (29%), funding (6%), or labor (2%). The remaining cases (13%) focused on reaching or refining agreement about conservation needs or strategies.

We used social network analysis to explore the patterns of interactions between collaborators in successful partnerships. In contrast to some past work, which has found conservation efforts to be dominated by one or two key actors, all of the cases we studied had multiple actors representing different organizations playing important roles. Nonetheless, the roles of the actors were not completely balanced; actors exhibited varying levels of engagement in the conservation work. The cases in which the roles of key actors were most evenly balanced were the cases that focused primarily on reaching agreement on conservation objectives and strategies. Because the legitimacy of these efforts depended on widespread support, the partnerships benefitted from structures that provided diverse actors with relatively equal opportunities to influence decision making. The on-the-ground habitat restoration efforts showed more variability in the level of engagement of various actors. In these cases, the conservation agenda was reasonably well accepted and the work of the group focused primarily on achieving that agenda. The level of engagement of actors was determined primarily by what they could contribute to help achieve that agenda. Because actors had different resources at their disposal (funding, knowledge, control over land, etc.), their level of engagement tended to vary.

The conservation work in most of our case studies depended on individuals who catalyzed the efforts. Although these catalysts played different roles in each case, they shared certain similarities. Each catalyst represented an organization viewed as having legitimacy in the conservation effort, either because it had statutory authority over the resource or controlled land on which the resource depended. Each demonstrated strong commitment to conservation, recognized and were able to address factors limiting progress on conservation, and paid considerable attention to fostering dialogue and relationships among collaborators.

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## Introduction

As a condition for receiving federal State Wildlife Grant funding, the U.S. Congress required each state and territory to develop a State Wildlife Action Plan (SWAP). All states and territories have had these plans approved. The SWAPs describe a course of action for protecting species *before* they become threatened or endangered. Among the required elements of the plans are an assessment of the status of species and habitat in each state and territory, a description of the threats species face, and identification of actions that may promote their conservation.

Collectively, the SWAPs provide a comprehensive blueprint for fish and wildlife conservation in the United States. Because of the attempt to make the plans as inclusive as possible, however, they typically are immense. Even considering the limited additional funding available through State Wildlife Grants, the SWAPs far exceed the capacity of any state fish and wildlife agency to implement on its own.

The implementation of actions called for in the SWAPs and the achievement of SWAP priorities, therefore, often depend on collaborative partnerships between government agencies, nongovernmental organizations, and industry. Organizations and agencies with common conservation interests have used the SWAPs as a framework to guide joint efforts. These efforts have contributed to SWAP implementation in a variety of ways. They have focused on different species and habitats, addressed a wide variety of threats, and operated at a range of geographical and temporal scales.

We studied collaborative SWAP implementation efforts underway throughout the United States between May 2008 and April 2009 to understand how they can and do contribute to the achievement of SWAP priorities.

## Purpose

The overarching goal for this project was to identify opportunities for advancing the implementation of the State Wildlife Action Plans (SWAPs) through collaborative partnerships.

Our specific objectives were:

- *Describe the forms taken by collaborative SWAP implementation efforts that are currently underway.* We characterized collaborative efforts according to what they were trying to accomplish, the agencies and organizations that were involved in these efforts, and the patterns of relationships between the partners.
- *Identify factors that facilitate or inhibit collaborative efforts.* Successful collaboration depends in part on judging whether the conditions are sufficient for success and knowing how to foster such conditions. We identified conditions that created opportunities for collaboration and determined how successful collaborative efforts addressed barriers that may otherwise have constrained them.
- *Describe roles filled by “catalysts.”* Researchers and practitioners recognize that successful collaboration often depends on key individuals or organizations with the capability and motivation to advance the collaborative process. We sought to understand

the roles that catalysts play in collaborative SWAP implementation – both the actions they take and the resources or qualities they possess.

## Summary of Results

The results of this study are categorized into six primary types:

- a model of collaborative SWAP implementation efforts;
- an analysis of ongoing collaborative SWAP implementation efforts;
- case descriptions of 6 collaborative SWAP implementation efforts chosen for intensive study;
- a social network analysis of the collaborators involved in 5 of our 6 case studies;
- an analysis of the roles played by catalysts in collaborative SWAP implementation efforts; and
- an analysis of the factors that most distinguish more successful collaborative SWAP implementation efforts from less successful ones.

### Model of Collaborative SWAP Implementation Efforts

We developed a model of successful collaborative SWAP implementation efforts (Figure 1). This model depicts both the conservation outcomes that SWAP implementation efforts try to achieve and the factors that influence their ability to achieve these outcomes. The outcomes targeted by SWAP implementation efforts are *protected land and habitat* and *improved habitat/larger populations* of key species. The factors contributing to their ability to achieve these outcomes include:

- funding;
- labor;
- information;
- legitimization (support or approval from those with authority or influence);
- coordination (of the activities of those involved in the effort);
- agreement about what is to be accomplished and how it is to be accomplished;
- dialogue; and
- relationships.

This model has several uses:

- It can clarify the variety of objectives that SWAP implementation efforts can have, distinguishing between efforts that contribute to on-the-ground conservation outcomes and those that focus on capacity building.
- When the objectives of an effort are clear, the model can be applied both by practitioners (those who lead or participate in conservation work) and decision makers (those in a position to approve or grant resources to support conservation work) to help them evaluate the likelihood of success of a particular effort. We have drafted questions based on this model that can help in this assessment.

- The model can be used as a guide to help diagnose possible problems in ongoing conservation efforts that are failing to make progress.

## **Analysis of Ongoing Collaborative SWAP Implementation Efforts**

We documented 144 collaborative SWAP implementation efforts in the course of our study. (Brief descriptions of all efforts are provided in Appendix A.) We classified these efforts according to the primary outcomes they were working to achieve. About half of the efforts focused on on-the-ground conservation outcomes – either habitat and species restoration (38%) or land protection (13%). More than one-third of all cases focused on generating resources for SWAP implementation – information (29%), funding (6%), or labor (2%). The remaining cases (13%) focused on developing agreement about conservation needs or strategies. The geographical distribution of these cases is depicted in Figures 3-9.

A complete list of all organizations who took part in these efforts is provided in Appendix B. The types of actors that were engaged in these efforts most frequently included (in order of frequency) state fish and wildlife agencies, conservation nongovernmental organizations, the U.S. Fish and Wildlife Service, state agencies with an environmental focus other than fish and wildlife agencies (e.g., parks agencies, forest agencies, etc.), universities, local government, U.S. Department of Agriculture programs other than the U.S. Forest Service, individuals (often, but not exclusively, landowners), the U.S. Forest Service, and industry (for-profit enterprises or groups of enterprises, including agriculture, forestry, etc.). Certain actors were more likely to become engaged in certain types of efforts.

## **Case Descriptions**

From this set of 144 collaborative conservation efforts, we selected 6 to study more intensively.

- Two of these efforts, the Grand River Grasslands of Missouri and Iowa and the South Puget Sound Prairie Restoration effort, focused on the restoration of native prairie habitat and species in particular geographic regions.
- The Nebraska Legacy Project also focused primarily on habitat restoration. This effort, however, was a statewide effort in which the Nebraska Department of Game and Parks worked together with a variety of other organizations to develop a framework for encouraging voluntary habitat conservation by private landowners in a series of Biologically Unique Landscapes throughout the state.
- In Vermont, the Vermont Fish and Wildlife Department and the Vermont Agency of Transportation have been collaborating to better incorporate wildlife and habitat considerations into transportation decision making.
- The Montana Conservation and Restoration Partnership is a statewide collaborative effort of state, federal, and local government agencies, conservation nongovernmental organizations, landowner groups, and industry to build capacity for the implementation of Montana's Comprehensive Fish and Wildlife Conservation Strategy.
- The Southeast Regional Partnership for Planning and Sustainability oversaw an effort to develop a candidate conservation agreement for gopher tortoise restoration in Florida,



Alabama, Georgia, and South Carolina. This effort involved high level state and federal agency representatives. The U.S. Department of defense was a major player.

We describe each of the cases in turn focusing on what they accomplished and the factors that influenced their success.

### **Social Network Analyses**

Social network analyses informed generalizations about effective structures of collaborative partnerships. Past work in environmental and natural resource management has described or advocated various structures, which differ according to how evenly balanced the roles of key actors in the partnership are, the density of interactions among actors, and other factors.

Our social network analyses detected both similarities and differences in the structures of collaborations. None of our cases was dominated by just one or two actors. Multiple actors representing different organizations had central roles in each effort. Nonetheless, the roles of the actors were not completely balanced; actors exhibited varying levels of engagement in the conservation work.

The cases in which the roles of key actors were most evenly balanced were the cases that focused primarily on reaching agreement on conservation needs and strategies (but not implementing these agreements). Because the legitimacy of these efforts depended on widespread support, the partnerships benefitted from structures that provided diverse actors with relatively equal opportunities to influence decision making.

At the other end of the spectrum were the on-the-ground habitat restoration efforts, which showed more variability in the engagement of various actors. In these cases, the conservation agenda was reasonably well accepted and the work of the group focused primarily on achieving that agenda. The level of engagement of actors was determined primarily by what they could contribute to help achieve that agenda. Because actors had different resources at their disposal (funding, knowledge, control over land, etc.), their level of engagement tended to vary.

### **Catalyst Analyses**

During each of our case studies, we evaluated whether recognizable “catalysts” were present – specific individuals or organizations who played a critical role initiating or sustaining the collaborative effort. Recognizable catalysts were present in all of the cases except for the Grand River Grasslands. We chose three of the cases in which catalysts were present (South Puget Sound Prairie Restoration, Montana Conservation and Restoration Partnership, and Vermont Transportation and Wildlife) for more detailed evaluation of the roles which they played.

The roles played by the catalysts in each of these cases were unique, but certain similarities also existed.

- Each catalyst represented an organization viewed as having legitimacy in the conservation effort, either because it had statutory authority over the resource or controlled land on which the resource depended.
- Each catalyst had sufficient support for being engaged in the collaboration from his or her employing organization.
- Each catalyst demonstrated ownership, or a strong commitment to a particular conservation agenda.
- Each catalyst recognized a factor that was limiting conservation progress.
- Each catalyst was in a position to address the limiting factor.
- Each catalyst paid considerable attention to the social foundation of conservation, working to establish relationships and encourage dialogue, both formally and informally.
- Each catalyst exhibited leadership qualities, demonstrating willingness to orchestrate those social processes that were necessary to address the needs they perceived.

## **Successes and Failures**

The factors that tended to distinguish more successful efforts from less successful ones included:

- The amount of labor collaborators were able to devote to the effort.
- The availability of funding.
- The degree to which the key actors involved in the effort were recognized as having a legitimate role (because of land ownership, statutory authority, recognized expertise in conservation, or other factors).
- The availability of a “handle” – a key species or resource that can serve as a foundation for building support and securing resources for conservation work.
- The quality of working relationships between collaborators.
- Reaching agreement on what needed to be accomplished, both over the short and the long term.
- A willingness of collaborators to consider other actors’ interests as well as their own.
- The flexibility of efforts in adapting and evolving as needs and conditions changed.

## **Approach**

### **Advisory Group**

We created an advisory group of 8 representatives of state and federal agencies and nongovernmental organizations that have been involved in efforts to implement SWAPs. Together with the project steward appointed by the Wildlife Habitat Policy Research Program, the advisory committee:

- Reviewed and commented on the overall study design;
- Reviewed and commented on proposed interview questions;
- Suggested collaborative partnerships for intensive case study;
- Reviewed criteria for selecting specific cases from among these collaborative partnerships;

- Reviewed preliminary results of the project; and
- Participated in a workshop to refine study results and develop recommendations for promoting collaborative implementation of SWAPs.

## **Telephone Interviews**

We conducted 60 telephone interviews of individuals knowledgeable about SWAP implementation throughout the U.S. Interview respondents included SWAP coordinators with state fish and wildlife agencies, representatives of federal agencies involved in SWAP implementation, and representatives of nongovernmental organizations. We solicited suggestions about who should be included in these interviews from the project steward, advisory group members, and others. The purpose of these interviews was to identify as many collaborative efforts to implement SWAPs throughout the U.S. as possible. We collected information about: (1) the types of conservation outcomes these collaborative efforts were attempting to achieve; (2) how collaboration contributed to achieving such outcomes; (3) what organizations were involved and the roles they played; (4) opinions about success of the collaborations; and (5) factors interviewees believed were influencing success. We developed brief written descriptions of each case we identified. Our key informants were given the opportunity to edit the case descriptions we developed based on their input, and 82% of them took advantage of this opportunity.

## **Case Studies**

From the list of 144 collaborative efforts generated during the telephone interviews, we identified 6 cases for more intensive study, all of which were viewed as successful by our key informants. These efforts were selected to be diverse with respect to: (1) the types of outcomes they were attempting to achieve; (2) region of the U.S. in which they occur; and (3) geographic scale. Our advisory group and project steward offered advice on case selection. We collected three primary types of data for each case: interview data, written documentation, and social network data.

## **Collaborator Interviews**

Between November 2008 and April 2009, we made site visits for each of the case studies and conducted in-depth, semi-structured interviews of key individuals involved in these collaborative efforts. We interviewed between 7 and 17 collaborators for each of the six cases. We selected interview respondents through a “snowball sampling” process. After first identifying one or more individuals who played a significant role in the collaborative effort, we then asked these individuals for recommendations of others who also played a significant role. We continued this process until no additional individuals were identified. We were not able to interview the complete set of individuals identified for 5 out of 6 of our cases, but we ensured that we: (1) interviewed those who played the most influential roles; and (2) included a diversity of organizations and interests in our sample.

The interviews were used to: (1) identify individuals and organizations involved and determine the roles that they played; (2) describe the activities and accomplishments associated with each

of the efforts; (3) determine what criteria participants used to judge their success; and (4) identify factors that promote or inhibit success.

As part of the data we collected, we devoted particular attention to the roles played by “catalysts” – individuals or organizations who were acknowledged by most other collaborators to play a pivotal role in initiating or sustaining collaborative action. For each case, we collected data from both the catalysts and other collaborators on: (1) whether catalysts were present; (2) what roles they played; and (3) what factors influenced their effectiveness.

We audiorecorded and transcribed most interviews. We used Folio Views 4.3 to conduct a content analysis of each transcript by coding interview respondents’ comments about: (1) the purposes of the collaborative efforts; (2) the criteria they considered when evaluating their success; (3) the factors that influenced their effectiveness; and (4) the roles played by collaborators, particularly catalysts.

Findings from the six cases were used to inform development of a model of collaborative SWAP implementation efforts. The model can be used as a framework for describing those efforts, specifying the outcomes they strive to achieve, and identifying the elements that contribute to their success.

### **Written Documentation**

For each site, we identified supplementary written documentation that helped to detail the activities and accomplishments of the collaborative efforts and the factors that promoted or inhibited their success. Much of this written documentation was in the form of agency reports and informational web sites. We read these documents and used the information therein to make our case descriptions more complete.

### **Social Network Analysis**

For 5 of the 6 sites, we conducted a social network survey of all individuals who had been identified as playing a significant role in the collaborative efforts (as described above). A social network survey collects information about relationships. Depending on the case, the data collected took one of three forms:

- In two cases, we collected data about the relationships among collaborators. In these cases, we asked collaborators how frequently they interacted with other collaborators, how frequently they interacted with them in the past, and how similar they considered their interests.
- In two cases, we collected data about relationships of collaborators with a variety of organizations who contributed to the collaborative effort. In these cases, we asked collaborators how frequently they interacted with these organizations, how frequently they interacted with them in the past, and how similar they considered their interests.
- In one case, we collected data about whether or not individuals participated in any of a series of events designed to strengthen relationships between two collaborating agencies.

The particular form of data collected was based on our judgment, informed by the opinions of the collaborators at each site, about what type of data would provide greatest insight into the nature of the collaboration.

From the data, we used Netdraw to produce social network maps depicting relationships between individuals or organizations involved in each collaborative effort. We used Ucinet 6 for Windows to calculate “closeness,” a measure of how central a role individuals or organizations play in the network. Closeness quantifies how closely connected an actor is with other actors in the network. Once we have documented relationships between actors, we can calculate the “distance” that separates each pair. Some pairs of actors are directly related to each other. Others may be related only indirectly through a third actor. Still others may require two or more other actors to connect them. The “geodesic” for a pair of actors is the shortest path necessary to connect them. For every actor in a given network, we can calculate “farness,” which is the sum of its geodesics with every other actor in the network. If we take the inverse of farness, we get the actor’s “closeness,” which essentially indicates how easily it can reach every other actor in the network. Because closeness is dependent on the size of a network, it is typically normalized by dividing an actor’s closeness by the maximum possible closeness for that network. It is expressed as a percentage varying from 0 to 100.

## **Workshop**

The project steward and members of the project’s advisory group participated in a 1-1/2 day workshop in March 2009. Preliminary study results were presented to the advisory group. Through facilitated discussion, the advisory group offered input on how to refine presentation of results and their significance to practitioners and decision makers. Based on the results of the five case studies we had completed as of that date, the advisory group also offered advice on how to modify our research questions and data collection methods for our sixth and final case study.

## **Deliverables**

### **Collaborative SWAP Implementation Model**

We developed a model depicting the elements and processes that contribute to successful collaborative SWAP implementation efforts (Figure 1). This model provides a framework for communicating a variety of our results. The components of this model are as follows.

All collaborative SWAP implementation efforts are ultimately aiming for *conservation outcomes*, including *protected land and habitat* and *improved habitat/larger populations* of key species, even if these outcomes will not become evident until many years after a particular effort has completed its work. These outcomes are interrelated in that protected land and habitat may allow for improved habitat and larger species populations.

Conservation outcomes are achieved through *actions*. To achieve improved habitat/larger populations, some type of *habitat/species manipulation* (vegetation treatment or removal, species translocation, captive breeding, etc.) is often necessary. *Land acquisition and easements* are often used to protect land and habitat.

Actions require certain *necessary resources*. *Funding* and *labor* are necessary for almost all actions. The selection of actions also depends on the *information base*. In cases where the existing information base is inadequate, it may be enhanced through research or efforts to synthesize and disseminate information (efforts which also depend on labor and funding).

Collaborative conservation also depends on *enabling processes*. One of these processes is *legitimization*, or securing the necessary support or approval from those with authority or influence. Those with authority or influence may include elected or appointed government officials, influential nongovernmental organizations, landowners, or members of the public. Legitimization of a particular effort allows it to access the necessary resources and leads to the authorization of its conservation actions.

Collaborative conservation efforts are also enabled by the *coordination* of the activities of those involved in the effort. Coordination involves joint decision making about how the collaborators can most efficiently use their combined funding and labor resources to achieve their common ends.

Finally, all collaborative conservation efforts depend on *relationships* and *dialogue* between collaborators and others. Relationships and dialogue help contribute to *agreement* about what collaborators hope to accomplish and how they will work to accomplish it. This agreement can lay the foundation for legitimizing conservation work by those with authority and influence and enable the coordination of efforts among collaborators.

This model was developed based on an analysis of collaborative SWAP implementation efforts, but likely could be applied to other types of collaborative conservation efforts. However, collaborative SWAP implementation efforts have several commonalities. Development of the SWAPs in each state contributed to the social foundation for collaborative SWAP implementation efforts by engaging the conservation community in relationship building and dialogue to develop agreement regarding species and habitat conservation goals and objectives. This agreement was reflected in the SWAPs themselves. The SWAPs also legitimized efforts to achieve the goals and objectives identified within them by documenting their importance. The development of the SWAPs, therefore, provided a foundation of common understanding for the collaborative conservation efforts studied as part of this project. Collaborative conservation in other contexts not associated with the SWAPs may require greater effort to establish such a foundation.

Although this model provides a generalized representation of collaborative SWAP implementation processes, a variety of variables influence how these processes are realized in different contexts. These variables include:

- Geographic scope of effort;
- Temporal scope of effort;
- Type and visibility of natural resource of interest;
- Quality of natural resource of interest (e.g., degraded vs. not degraded);
- Durability and intensity of threats to natural resource; and

- Jurisdiction or control over resource (e.g., private vs. public land, state vs. federal, mixed authority, etc.).

### Use of the Model

This model can help practitioners and funders of collaborative SWAP implementation efforts understand how to judge comprehensiveness and likely effectiveness. First, it can clarify the variety of objectives of SWAP implementation efforts. Although all such efforts ultimately intend to contribute to on-the-ground conservation outcomes (such as protected land, restored habitat, or larger species populations), the achievement of these ultimate outcomes may lie beyond the scope of any particular contributing conservation activity. Some efforts may simply involve laying the foundation for conservation outcomes by working to develop other elements (depicted in the model) that provide capacity for conservation – funding, labor, information base, legitimization (or support), or agreement what needs to be accomplished or how it should be accomplished (as reflected by plans, agreements, identification of priority areas, habitats, species, etc.). The importance of capacity building in conservation work has been noted by numerous authors (Frentz et al. 2000, Katon et al. 1999, Lauber 2006, Raik et al. 2005).

When objectives of an effort are clear, the model can be applied both by practitioners (those who lead or participate in collaborative SWAP implementation efforts) and decision makers (those in a position to approve or grant resources to support collaborative SWAP implementation efforts). The model can help them analyze and qualitatively evaluate the likelihood of a particular conservation effort succeeding. For a given conservation effort, questions to consider include:

- **Actions.** What actions might help you to achieve the desired outcome(s)?
- **Information.** Do you have enough information to choose from among these actions?
- **Funding.** Is funding available to support these actions? From what sources will it come?
- **Labor.** Who will carry out the conservation work?
- **Legitimacy.** Does the work have the support of those who can influence whether it will succeed? Public or private landowners? Government agencies with statutory authority over the resource? Elected officials? Influential interest groups or individuals?
- **Coordination.** What organizations and individuals are engaged in activities which will influence whether you will achieve the desired outcomes? How well are these activities being coordinated to achieve these outcomes?
- **Agreement.** How much agreement exists among conservation interests (both governmental and nongovernmental) about conservation priorities and goals? About how to achieve these priorities and goals?
- **Dialogue.** What is the quantity and quality of communication between these conservation interests? Do they share information about their interests and activities?
- **Relationships.** What is the quantity and quality of relationships between these conservation interests? Do they know each other? Have they worked together? Do they trust each other?

The answers to such questions may shape the direction that collaborative conservation efforts take. For example, if information about how to restore grassland habitat is insufficient for a grassland restoration program, collaborators may choose to prioritize research on restoration

techniques. If funding is insufficient, collaborators may prioritize developing funding sources either by cultivating relationships with agencies and organizations that control potential sources of funding or lobbying elected officials to create new sources of funding to support conservation work. If private landowners who control important habitat areas are hostile or indifferent to grassland restoration, collaborators may choose to cultivate relationships with them to explore opportunities for activities that will achieve joint gains.

In a similar way, the model can be used as a guide to help diagnose possible problems in ongoing conservation efforts that are “stalled” or “stuck.” By considering the list of questions above, practitioners may identify actions that could help to get the effort moving again.

Decision makers could use the model as a framework for evaluating whether to support a proposed conservation effort. Currently, it is not uncommon for decision makers (such as funders) to evaluate proposed projects on the basis of criteria such as the alignment between objectives and the funder’s priorities, the qualifications of those leading the project, and the degree to which an effort involves multiple collaborators. Sometimes lacking, however, are specific standards for evaluating the likely success of a proposed project. The elements identified in our model can serve as the basis of these standards. Although conservation efforts are diverse and, therefore, adopt a wide variety of approaches for filling their needs, our model identifies elements that were filled in some way in all the successful collaborative SWAP implementation efforts we studied. Rather than specifying that projects have to approach the identified elements in particular ways, our model suggests elements that a proposed project should address (using questions similar to those outlined above). Decision makers could consider the degree to which practitioners have made a convincing case that these elements are incorporated into program design.

### **Analysis of All Collaborative SWAP Implementation Efforts**

We identified 144 collaborative SWAP implementation efforts in our initial telephone interviews. Brief descriptions of all efforts are provided in Appendix A. In this section, we summarize basic descriptive data about these efforts. These data must be interpreted with caution because:

- The list of collaborative SWAP implementation efforts we developed is not complete. Those efforts included in the list are those that our telephone interview respondents considered most noteworthy.
- The level of detail we have about each case varies considerably. Some of our key informants were intimately involved with a particular effort, yielding detailed information about those cases. Other key informants had only passing familiarity with a number of cases, providing much more limited data from them (e.g., incomplete lists of collaborators, some uncertainty about current status of effort, etc.).
- Many respondents did not have sufficient time with us to discuss all of the collaborative efforts with which they were familiar. In such situations, we encouraged respondents to describe those efforts that they believed had the greatest impact on addressing conservation needs. Consequently, the cases with more limited impact are likely underrepresented in our sample.



We classified conservation efforts according to the primary outcomes they were working to achieve per our collaborative SWAP implementation model:

- habitat or species restoration (better quality habitat or larger populations of key species);
- land protection (legal protection of land through acquisition or easements);
- funding (development of new sources of funding to support SWAP implementation);
- labor (development of new sources of labor to support SWAP implementation);
- information base (conducting research to develop information or disseminating information to practitioners); or
- agreement (about what to accomplish or how to accomplish it).

The reader should keep in mind that many, if not most, of the efforts we studied were working towards multiple outcomes. We classified these cases according to what we judged to be the *primary* outcomes they were trying to produce – the outcomes that those individuals and organizations involved in the effort considered most fundamental to their success.

The number of cases we identified in each category is portrayed in Figure 2. More than half of the efforts focused on on-the-ground conservation outcomes – either habitat and species restoration (38%) or land protection (13%). More than one-third of all cases focused on generating resources for SWAP implementation – either information (29%), funding (6%), or labor (2%). The remaining cases (13%) focused on developing agreement. The geographical distribution of these cases is depicted in Figures 3-9.

We found considerable variation in the types of organizations that collaborated on these efforts and the kinds of contributions they made. Mitchell et al. (1997) identified three key characteristics of stakeholders, power, legitimacy, and urgency, which we think are useful for describing what collaborators can bring to conservation. Power refers to the ability to make certain outcomes occur. In conservation, stakeholders with power may have the ability to provide financial or other resources. Legitimacy, which is often but not always associated with power, is a characteristic of stakeholders who are acknowledged to have an appropriate role in a given context. In conservation, stakeholders who provide legitimacy include those who have the legal authority to approve or prevent a particular course of action and those whose support is crucial for a project's success. Urgency refers to the importance of outcomes to stakeholders. In conservation, stakeholders with urgency would be those to whom management outcomes are important.

A complete list of all organizations who took part in these collaborative SWAP implementation efforts is provided in Appendix B. Figure 10 depicts the types of actors involved most often, including:

- state fish and wildlife agencies;
- conservation nongovernmental organizations (NGOs);
- the U.S. Fish and Wildlife Service (USFWS);
- state agencies with an environmental focus other than fish and wildlife agencies (e.g., parks agencies, forest agencies, etc.);

- universities;
- local government;
- U.S. Department of Agriculture (USDA) programs other than the U.S. Forest Service (USFS);
- individuals (often, but not exclusively, landowners);
- the USFS; and
- industry (for-profit enterprises or groups of enterprises, including agriculture, forestry, etc.).

The actors most frequently engaged in these cases were state fish and wildlife agencies and conservation NGOs. Certain actors were more likely to become engaged in certain types of efforts.

- The USDA, the USFWS, and landowners were most likely to be involved in habitat and species restoration efforts – efforts producing on-the-ground conservation benefits. Private landowners often control lands on which habitat is to be restored and USDA and USFWS both administer cost share programs that provide funding for landowners to implement conservation practices on these lands. In addition, USFWS has a role in the management of any species that are federally listed (or candidates to become federally listed).
- Industry, state environmental agencies, the USFS, and conservation NGOs were most likely to be involved in land protection efforts. In these cases, industry groups often owned lands to be protected, while state environmental agencies sometimes became the owners of these lands. The USFS contributed funding from the Forestry Legacy Program in many cases in which conservation easements were acquired. Conservation nongovernmental organizations also often provided funding and other support for these efforts.
- Universities were more likely to be involved in efforts to improve the information base – efforts which usually involved research.

The particular conservation NGOs involved in these efforts varied widely. By far, the NGO mentioned most frequently as a collaborator in these cases was The Nature Conservancy, which was identified in 27% of the cases. No other conservation NGO was identified as being engaged in more than 5% of the cases.

## **Case Descriptions**

From this set of 144 collaborative conservation efforts, we selected 6 to study more intensively. The selected cases were considered “successful” by one or more of our telephone interview respondents.

- Two of these cases, the Grand River Grasslands of Missouri and Iowa and the South Puget Sound Prairie Restoration effort, focused on the restoration of native prairie habitat and species in particular geographic regions.
- The third case, the Nebraska Legacy Project, also focused primarily on habitat restoration. This effort, however, was statewide in scope. The Nebraska Department of

Game and Parks worked together with a variety of conservation nongovernmental organizations to develop a framework for encouraging voluntary habitat conservation by private landowners in a series of Biologically Unique Landscapes throughout the state.

- Our fourth case focused on collaboration of the Vermont Fish and Wildlife Department and the Vermont Agency of Transportation to improve how wildlife and habitat considerations were incorporated into transportation decision making.
- Our fifth case, the Montana Conservation and Restoration Partnership, was a statewide collaboration of state, federal, and local government agencies, conservation nongovernmental organizations, landowner groups, and industry to build capacity for the implementation of Montana's Comprehensive Fish and Wildlife Conservation Strategy.
- The final case was the development of a candidate conservation agreement for gopher tortoise restoration in Florida, Alabama, Georgia, and South Carolina. Development of this agreement was one aspect of a complex and multi-faceted effort to restore gopher tortoises and their habitat in the southeastern U.S. It served to enable and provide a broad framework for many related efforts. This case involved high level state and federal agency representatives under the auspices of the Southeast Regional Partnership for Planning and Sustainability. The U.S. Department of Defense was a major player. We conducted our research on this case after our advisory group workshop so that our data collection would be informed by questions that sprang from the other five cases. Therefore, the focus of this case is slightly different from that of the others.

We describe each of the cases focusing on what they accomplished and the factors that influenced their success.

### **Prairie Restoration in the Grand River Grasslands**

The Grand River Grasslands Partnership is a collaborative effort of state, federal, and nongovernmental organizations working together to restore native prairie in the 70,000-acre Grand River Grasslands region in northern Missouri and southern Iowa. The partners hope this effort will benefit a variety of animal species including greater prairie-chickens and other grassland birds.

The conservation work in the Grand River Grasslands contributes to both Missouri's and Iowa's State Wildlife Action Plan (SWAP) objectives, but this partnership predated the development of the SWAPs by a number of years. Therefore, the work of the partnership benefitted from relationships between partners that had been developing over a longer period. The development of the SWAPs reinforced these efforts, and, at least in Iowa, led to a higher priority being placed on them.

*Iowa didn't really have a strategic plan that ... held the Grand River Grasslands ...to any higher standard than anything else in Iowa. They were just trying to do it all. I think the Comprehensive Wildlife Strategy and the plan that came out of that for Iowa forced them to really start to pick some priorities... I think the Comprehensive Wildlife Strategy has allowed them to maybe showcase the Grand River Grasslands a little bit and it's receiving more support and attention than what it probably did before. [MO-07]*

Land Protection: Conservation work in the Grand River Grasslands began in earnest in the late 1990s when The Nature Conservancy (TNC), the Missouri Department of Conservation (MDC), and the Iowa Department of Natural Resources (Iowa DNR) acquired several parcels of land in the area with significant potential for native prairie restoration. The region had long been a working agricultural area used primarily for cattle grazing, but retained a core of native grasslands. When the opportunity arose to purchase land, all three organizations saw the potential to address their pre-existing interest in prairie restoration because the area was one of the best potential sites for prairie restoration in both states. On the Missouri side of the border, TNC and MDC now own approximately 4,500 acres of land, and on the Iowa side of the border, Iowa DNR owns nearly 1,400 acres of land, which it is hoping to increase to 2,000 acres in the near future.

TNC has continued to work to protect additional properties although it has shifted away from a strategy of outright land acquisition so that it can maximize the conservation benefits it obtains from its available funding.

*TNC ... what they're doing in order to perpetuate more land under protection is they've started to buy tracts and restore them and put them under conservation easements, then put them back into production... It allows them to sell it with the conservation easement and turn around and buy another 80 acres or 160 and restore that and maybe convert that back to private ownership at some point. [MO-07]*

Habitat Restoration on Public Lands: Given that a significant core of land in the region has been acquired by TNC, MDC, and Iowa DNR, these organizations collectively have the legitimacy or authority to determine land management practices over a considerable portion of the region. Consequently, much attention over the last ten years has been devoted to restoring prairie habitat on those parcels. Identifying the best approaches to restoring native vegetation has involved an element of “trial and error” because the information available on prairie restoration techniques was inadequate. Land managers can use a variety of techniques including grazing, mowing, herbicide application, and prescribed fire, but the intensity, timing, and best combination of those techniques has had to be discovered over time.

*We literally, by trial and error, had to figure out what was going to work and what wasn't going to work. It was a slow process and what works one year doesn't work the next year. The technical part of it we were literally writing as we went along. [MO-03]*

Continuing experimental work on restoration methods led by Iowa State University is currently underway in the region.

Initially, prairie restoration was limited not only by uncertainty about the best management techniques, but a lack of seed for key native plant species. Over a number of years, MDC developed a native seed nursery on its Pawnee Prairie property, and seed from this property was harvested for restoration projects.

*The issue was really about getting enough native seed...So ...the previous manager went in and on this piece of public ground, he developed a nursery and propagated all of our*

*plants that we use by collecting seed. All the seed ...came from that nursery. And now we're to the point where we're not even really using that nursery anymore...we're just harvesting seed off the prairie areas. [MO-01]*

As of today, significant habitat restoration has taken place on the TNC and public properties, and lack of native seed is no longer a limiting factor.

Habitat Restoration on Private Lands: For key desired species, such as greater prairie-chickens, to become well-established in the Grand River Grasslands, extensive areas of native prairie vegetation will be necessary. Limiting prairie restoration to the core public and TNC parcels will be insufficient to achieve this objective. Consequently, the Grand River Grasslands Partnership has devoted an increasing amount of attention over the last ten years to prairie restoration on private lands.

The partners faced two challenges in this work on private lands. First, they needed to identify additional funds to support the work. Secondly, they needed to persuade private landowners to allow the work to take place.

The first challenge was easier to address than the second. MDC and Iowa DNR have worked closely with the Natural Resources Conservation Service (NRCS) and the U.S. Fish and Wildlife Service (USFWS) to direct funding to the region from federal cost-share programs that support conservation efforts on private lands. Two of the chief programs used to support this work are the NRCS's Wildlife Habitat Incentives Program and USFWS's Partners in Fish and Wildlife Program. In addition, both MDC and TNC have sources of funding of their own that can be used to support habitat restoration on private lands. None of the partners believe that a lack of funding is a limitation on these conservation efforts on private lands.

The more serious barrier, however, has been finding landowners who are willing to restore native vegetation on their properties. Although some landowners are interested in wildlife and habitat conservation, they understandably place a priority on the viability of their cattle grazing operations. Some practices can meet both conservation and agricultural objectives. Many local landowners have been willing to remove trees from their properties, particularly when funding from cost-share programs is available. Tree removal increases the extent of forage available for cattle and increases the extent of grassland available for wildlife.

*It falls in good with their management regime. If you're a cattleman and you have quite a few trees on your property you have less grass, so a lot of them are interested in removing trees, especially undesirables...to get more grass. Perhaps it may make it a little easier for them to manage their stand. If you have an old fence in a hedgerow it's kind of hard to manage and maintain, so they're willing to accept our cost share to remove the mature trees in that fencerow and basically start from scratch. That's one reason why it's pretty popular. [MO-01]*

Other practices, such as conversion to native warm season grasses, provide higher quality forage for cattle, but native grasses demand more intensive management by landowners because they can not be grazed as heavily and so cattle have to be rotated from field to field more frequently.

Identifying land-use practices that will meet both conservation and agricultural objectives is not sufficient to convince landowners to adopt these practices, however. Some landowners' families have lived on their properties for generations and are not easily persuaded that new practices advocated by government or conservation organizations will benefit them.

*If I have a fellow that's 70 years old and he's inherited that farm from his father and his father before him...I really have very few of those cooperators... A guy that's making a living for himself and his family and has always done things the same way... That's a hard nut to crack there. [MO-01]*

Addressing this reluctance requires a long-term commitment of members of the Grand Rivers Grassland Partnership to building relationships with the local landowners, and the fruits of these efforts may not be realized for many years. A variety of strategies for establishing contact and building relationships with landowners have been tried, including mailings, workshops, field days, dinners, and others. By all reports, however, the most successful attempts at relationship building involve repeated one-on-one contacts with individual landowners.

*I: You talked about a variety of things you do try to ... recruit [landowners]...Do you have a sense of what's most effective?*

*R: That's easy...one-on-one... You've got to visit with them and develop a relationship. They have to trust you. [MO-01]*

This work with the landowners is labor intensive. MDC has some advantages over other state agencies in funding this work. Compared to many state fish and wildlife agencies, MDC is well-funded given that the proceeds from a 1/8% sales tax are dedicated to fish and wildlife conservation. Consequently, MDC has been able to support a relatively large number of staff members who dedicate part of their effort to work in the Grand River Grasslands.

*The one-eighth of one percent sales taxes are really helping Missouri. I have three counties. My counterpart in Iowa used to have fourteen. That gives me more time to focus there. We are kind of blessed ... [MO-01]*

The partnership has recognized, however, that its momentum was somewhat limited by the fact that for almost all of the partners, work in the Grand River Grasslands was only one part of their responsibilities. Within the last year, the partnership secured funds to hire a project leader to focus exclusively on maintaining momentum on prairie restoration work in the region. To date, prairie restoration efforts on private lands have met with mixed success. Following positive experiences with some smaller scale changes to their management practices, a few key landowners have agreed to experiment with a variety of new techniques. The partnership hopes that as other landowners observe the benefits of these new practices, more and more will be willing to adopt them.

Key Considerations: The habitat restoration efforts in the Grand River Grasslands have clearly benefitted from the fact that the key governmental and nongovernmental organizations involved in this work (TNC, MDC, Iowa DNR, and USFWS) all agree about the importance of prairie

restoration and place a high priority on this work. Although NRCS' mission is focused primarily on agriculture and production, the local NRCS office has a staff member specifically dedicated to encouraging practices that will benefit wildlife, and he is strongly supportive of the prairie restoration efforts.

*At the statewide level the NRCS and the resource agency are working together and have decided the grasslands and prairies are a priority. ... Because people in their organization have participated in the development strategy then they concur that the places identified in the strategy for prairies are the highest priority – not the only priority, but the highest priority. Whenever a stakeholder group in one of those conservation opportunity areas says that they need more money for certain practices or whatever, then at the local level they are not reluctant. As a matter of fact, it's kind of streamlined to say, "Well, of course we recognize that." [MO-0]*

The key partners involved in the Grand River Grasslands Partnership all cited the willingness of partners to work together collaboratively as important to the success of the partnership. Communication and coordination among the partners have been facilitated by regular meetings. These meetings have helped the partners recognize common needs and interrelated activities, which has contributed to the refinement of priorities and the coordination of these activities. Partners have developed innovative ways to share funding and equipment, which has benefitted their common conservation agenda.

In contrast to many other collaborative conservation efforts, no identifiable catalyst of this work appeared to exist, although general consensus seems to exist that TNC, MDC, and Iowa DNR are the three most important partners.

*I: Of the various organizations and agencies involved...do you see any as playing a particularly critical role in the partnership?*

*R: The three we've mentioned...the Iowa DNR, the Missouri Department of Conservation and TNC...because they're the large landowners...I'm not exactly sure on the acreage and what percentage of that landscape is... but it's a fairly significant amount. So I would say that their role is very critical and they are the face that the public sees day in and day out. [MO-04]*

One factor that may have obviated the need for a catalyst is that all three of the principal partners shared a common emphasis on prairie restoration in this area right from the outset of this partnership. In addition, all three are large landowners (with authority over land management practices on significant parcels), and, therefore, conservation work in this region was less constrained by some of the limiting factors that can impede it in other areas.

On the other hand, some partners believe that a lack of local ownership of these efforts reduces effectiveness to some degree. No strong local community-based organization is advocating for prairie restoration in the region. Consequently, some partners fear that this conservation program is overly dependent on the government and TNC, and that greater emphasis on fostering local ownership is needed.

*The challenge is that you're grooming your landowners to always pay them to do things. These guys, if they're sharp and they stay ahead of the game, they'll never cut a tree on their own because they know they can get cost share to do it... We're grooming our landowners to always accept cost share for the things that we want them to do. [MO-01]*

### **South Puget Sound Prairie Restoration**

In the South Puget Sound region of Washington State, a collaborative effort of state, federal, and nongovernmental organizations is working towards the restoration of prairie habitat. The partners are hoping to restore one federally endangered plant (golden paintbrush) and four animal species, which are candidates for federal listing – the Mazama pocket gopher, the streaked horned lark, and two butterflies (Taylor's checkerspot and Mardon skipper).

These efforts contribute to Washington's State Wildlife Action Plan (SWAP) objectives, but this collaborative partnership predated the development of the SWAP. Although the development of the SWAP reinforced the collaboration, the work of the partnership benefitted from relationships between partners that had been developing over a number of years. At least one partner views this prairie restoration effort as a compelling example of how Washington's SWAP can be integrated with existing initiatives in pursuit of conservation goals. In other instances, he believes that the narrow focus of Washington's SWAP on wildlife has inhibited collaborative conservation.

*A success of the South Puget prairie working group has been that they're looking at all ecosystems, ecological values, and plants, animals and habitats. And at least in Washington the Wildlife Action Plan is more narrow...it's all about wildlife. ...The working group is not at all that way. The Fish and Wildlife personnel in there that we work with would like to be broader so it shows a willingness ...participating in the working group shows a willingness to expand. It would be nice if that would play out...in other aspects of Wildlife Action Plans. ...[Washington's SWAP] hasn't constrained that effort at all because that effort is well underway. I would think the South Puget Sound working group effort would be a good model for how to improve upon the Wildlife Action Plan to make it be more comprehensive...a full array of ecosystem values...so I guess that's, in my mind, a real plus of the working group. This is a more positive way to phrase it instead of me whining about their Wildlife Action Plan. [PS-4]*

Land Protection: The U.S. Fish and Wildlife Service (USFWS), the Washington Department of Natural Resources (Washington DNR), the Washington Department of Fish and Wildlife (Washington DFW), and The Nature Conservancy (TNC) have been interested in the preservation and restoration of prairie habitat in the South Puget Sound region since at least the early 1990s. Initially, acquisition of prairie parcels was a high priority of Washington DNR, Washington DFW, and TNC, and acquisition funds were generally available from one of these organizations when key parcels became available.

*In Washington we're in kind of a unique situation in that there are ... sources of funding for protecting a lot of those lands. There's state Fish and Wildlife, DNR... [and] others*



*that have been able to come up with money to purchase these lands when they become available oftentimes. [PS-03]*

Nevertheless, this part of Washington is a heavily developed region with ongoing development pressures, and the number of parcels suitable and available for acquisition was limited. As of today, most of those suitable parcels have been acquired, and prices on remaining parcels are often too high for acquisition to be feasible.

Habitat Restoration: As key prairie parcels were acquired, an increasing amount of attention has been devoted to habitat restoration. This work has involved two primary components. (1) Efforts have been made to reduce invasive plants species – particularly Scotch broom. This work has been highly successful on some sites and is continuing on others. (2) As invasive plants have been reduced, partners have made attempts to restore native plant species. Originally, this work was constrained by a lack of sources of native seed, but the number of these sources has increased (including a native plant nursery operated by TNC in the region).

*We're way ahead of where we were 10 years ago, which was nowhere. You couldn't get native plant seed for most of these ...species. Now there are several facilities producing large quantities of this, so that will be a real boost in future years as we shift from trying to get rid of the invasives to trying to restore areas that are highly degraded and are lacking in a lot of species. That's going to be a big part of future conservation. [PS-03]*

Funding to support habitat restoration has come from the U.S. Army's Fort Lewis, the Natural Resources Conservation Service (NRCS), and the U.S. Fish and Wildlife Service.

Fort Lewis has played a critical role in restoration efforts beyond the funding it has provided. Currently a training ground for 30,000 troops, Fort Lewis is a heavily used (and growing) military facility. Approximately 80% to 90% of the remaining prairie habitat is on Fort Lewis' property, and therefore activities there have a major effect on prairie conservation.

Although their primary mission necessarily remains troop training, Fort Lewis values prairie conservation and actively contributes to restoration goals. Consequently, conservation interests have been able to find sufficient common ground on prairie restoration with authorities at Fort Lewis. When conservation and military objectives have conflicted, Fort Lewis has been willing to consider alternative approaches to achieving their military mission.

*They're really a cooperative group. They are amazingly cooperative. They're doing things out there that you wouldn't imagine that the army would support and the army would be saying, "Well, we want to do it this way because we think it's the right thing to do." [PS-01]*

Habitat restoration efforts have met with considerable success, but have also faced some constraints. Although the major partners involved in this work largely agree about what they seek to accomplish, sometimes disagreements surface over the desirability of particular management techniques (which may, for example, benefit plant communities but pose some risk for rare insects).

*When you start talking about burning the prairies the entomologists go nuts. "You've got to be really careful. You can't burn more than a certain percentage of prairie at any given time." I think that most of us understand that. We'd always encourage that. [PS-01]*

These efforts have also been constrained by inadequate knowledge about the most effective restoration techniques, although such knowledge has improved considerably over time:

*We've gotten to a point where our management is not so haphazard. It used to be, "Well, let's go out there and burn it and see what happens." Now when we go out and burn it ...for every acre we might have 15-20,000 plants that we just put onto that site because we know that if we just let mother nature do it, it turns into a lot more weeds. So what I like to call active management is that we do whatever we need to do to restore our site...[PS-01]*

The partnership is also constrained by limited expertise in the use of prescribed fire, which is widely recognized as an important tool in prairie restoration. One TNC staff member has considerable experience with prescribed burns, but the needs for its application exceed his capacity to administer it.

*One of the many hats that I wear is the fire manager for the state of Washington for The Nature Conservancy so any fire-related stuff comes under my umbrella. The only burning that gets done in Washington by The Nature Conservancy is what I do so it's been pretty limited. We had very few staff that had any experience in this. [PS-03]*

Ongoing experimentation with a variety of management methods continue to contribute to habitat restoration. TNC is overseeing a large scale collaborative research project focused on evaluating techniques for prairie restoration on heavily degraded parcels. These techniques have the potential to be particularly valuable in a region that has been so heavily impacted by development.

*We set up this five-year experiment where we had different treatments that we applied repeatedly... We've done this fairly uniformly across a large number of sites ... We use that approach for several reasons. One is that we wanted our results to be applicable beyond just a single site or a couple of sites or within a single region. We were trying to be able to generalize across a broader range of sites as to what were particularly effective treatments. We really wanted to have our findings adopted and implemented by land managers. Basically we brought in all the land managers involved in major sites we could come up with throughout the region as cooperators on the project and it's been highly successful as a result... From my perspective it was an extremely effective approach, both from an experimental, scientific perspective and from a restoration/implementation perspective, which if you don't get both, you haven't succeeded. [PS-03]*

Species Restoration: Restoration of rare plant (golden paintbrush) and animal species (Mazama pocket gopher, streaked horned lark, Taylor's checkerspot, and Mardon skipper) has been the most challenging and least successful component of the work to date. These efforts have been hampered by a lack of knowledge about the habitat needs of these species and about techniques that will be successful at restoring them.

The fact that these species are either federally listed or under consideration for listing has increased interest in their conservation and resources available for it. Both USFWS and NRCS place a higher priority on work that can contribute to the restoration of listed or candidate species, and the presence of listed species adds greater legitimacy to USFWS' involvement in management.

*We still didn't have a hook. What's going to be the federal Fish and Wildlife Service's hook onto this?...The golden paintbrush ... was one that is only found on ten places on earth, and its range has just retracted considerably... Now it's just found in a few locations hovering around Puget Sound... Its number at every single population we monitored were going down...There was a lot of serious conservation threats out on the sites... We were actually able, in 1997, to put this golden paintbrush on the endangered species list as a threatened plant... We had this nexus now onto the prairies... If you see a lot of the work that's been done in terms of acquisition ...every time we went to awarding funds from that, where it was coming from us, from the Natural Resources Conservation Service, from any federal agencies...once there was that federally listed plant on there it brought the scoring and the ranking of those parcels way up, so all of a sudden we had some species that allowed us to actually generate some funds and commit funds to these prairies and do some on-the-ground conservation work. [PS-01]*

Two major thrusts in the species restoration work are of particular note. The Army Compatible Use Buffer Program (ACUB) provides funding to protect habitat and rare species. Because military bases often are large with extensive undeveloped areas, they sometimes contain excellent habitat. ACUB was created to avoid having these bases become islands of habitat and rare species. In most cases, ACUB funds are used to purchase properties outside of military bases with habitat and species in need of protection. In the South Puget Sound region, however, most of the remaining prairie parcels have been acquired already. Consequently, ACUB funds are being used to restore habitat on these parcels rather than purchase new parcels. This use of ACUB funds is unique and required considerable discussion before it was approved.

*The source of funding that really helped us on this is the ACUB funding... It's the Army Compatible Use Buffer program and it's basically a source of funding that military bases are using to try to protect land around military installations so that the installations themselves don't become islands of rare species habitat and interfere with military training obligations... In Washington we're in kind of a unique situation in that there are other sources of funding for protecting a lot of those lands.... What has been missing are dollars for restoration management and research ... so we've gotten an allowance that allows ACUB funds to be spent on stewarding and research on these properties rather than buying properties ... But it's ... pretty uncommon for funds to be used that way. [PS-03]*

A variety of agencies and organizations are also working together to develop a Candidate Conservation Agreement (CCA) that will reflect their agreement about how to protect species in the region. USFWS allows individuals or organizations to develop CCAs to protect candidates for listing on particular parcels of land. Parties to a CCA are protected from additional restrictions if candidate species are eventually listed. The CCA being developed in the South Puget Sound region is unusually large scale, covering six organizations and twelve species. When developed, it will serve as a common long-term conservation plan for the region, but the process of developing it has been cumbersome and has taken more time than expected.

*It's been a huge effort. We thought it would take just a couple of years initially and we've been working on it for five years already...There's probably another year or so. If it's not the largest one in the country it's probably pretty close. It's definitely among the most complex. Very few have tried to do a multi-species agreement and even Fish and Wildlife Service had to step back and go, "Gosh, maybe we really don't know how to do an agreement quite like this." So they've had to sort of do some rethinking about how to approach it as well. So that's part of what slowed the process down. [PS-06]*

Key Considerations: With only minor exceptions, partners in the South Puget Sound agree about prairie conservation priorities.

*There is that understanding from all the different partners...that we all play a role in conservation of these prairies and our roles are maybe just a little bit different. I think that we could probably say that our long-term objectives are identical. [PS-01]*

While at least one conservation actor outside of the partnership perceives this effort as being too insular, with a lack of independent evaluation of its efforts from those outside the partnership, the value of the work the partners have been able to accomplish is recognized nonetheless. Partners have worked together to coordinate their efforts and develop common plans for the protection of habitat and key species. These joint efforts have been attractive to funders and have helped them avoid the generation of competing proposals. The ongoing development of the CCA is the latest and most comprehensive effort to develop common management plans.

The public has become increasingly interested in prairie conservation as has been evidenced by the popularity of annual “prairie appreciation days.” Citizens’ groups have actively advocated for prairie restoration in some contexts.

*The working group has definitely played a part in that, creating ... the constituents to advocate for [prairie restoration]. Prairie appreciation day is an example of ... that event each year where it's open to the public to come out and learn. That has been effective in creating that constituency whether it's advocating for dollars or whatever. That's been very successful. [PS-04]*

The major partners to this effort have developed strong, long-term relationships.

*My view of the group is that they seem really compatible in sharing interests and they get along well and that's my general feeling... It works well...it's cooperative and collaborative...people all like each other. [PS-02]*

By most accounts, TNC has served as the chief catalyst for prairie restoration. Although most major partners had been involved in prairie restoration work independently, TNC facilitated the formation of the South Prairie Sound Prairie Working Group and took primary responsibility for trying to reach out to potential new partners and identify areas of common interest, coordinate the activities of partners, and identify resources to support conservation work. Originally, this working group included just the major partners to this work and through its meetings contributed to the development of agreement about needs and approaches, coordination of activities, and identification of resources to support common priorities. The working group has evolved over time into a much larger and less well-defined group.

In recent years, TNC hired a staff member to focus primarily on coordinating prairie restoration in the region. TNC has developed a well-articulated philosophy of the steps necessary to create collaborative conservation partnerships and focuses on three primary elements: information exchange, creating linkages between partners, and providing incentives for conservation work.

### **Nebraska Natural Legacy Project**

The Nebraska Natural Legacy Project (NLP) is Nebraska's approach to the development and implementation of its SWAP. It is a statewide initiative led by the Nebraska Game and Parks Commission. It entails a two pronged approach: emphasizing both habitats and selected individual species. Because it is a statewide effort, a series of Biologically Unique Landscapes (BULs) were established throughout the state. Consistent with SWAP priorities, it broadly seeks to reverse the decline of at-risk species, and as such avoid the need for federal listing, to recover currently listed species, and to keep common species common. The NLP initiative embodies a number of principles: building a broad base of social support via public involvement; using high quality ecological science; and emphasizing sound economics, diverse and committed partnerships, and voluntary, incentive-based conservation behavior of private landowners (i.e., minimize the acquisition of land by government). The program is structured in a geographically decentralized way to respond to the diversity of stakeholder interests, species and habitats across Nebraska.

Plan Development: Early phases of plan development emphasized building a social foundation upon which future work could be based. Partnerships were crucial from the outset. Beginning around 2003, a project planning team was formed. This team consisted of multiple federal agencies (e.g., USDA NRCS), state agencies (e.g., Nebraska Department of Agriculture), and a wide spectrum of private interests, ranging from Nebraska Cattlemen to The Nature Conservancy. These initial partners served as ambassadors to their organizations to gather insights from members and to encourage them to attend regionally based public meetings. These partners thus served not only to help solicit and coordinate input into the shape of the effort, but also acted as a source of legitimization for the effort.

Multiple meetings were held in each of the four regions of the state (Tallgrass Prairie, Mixed Grass Prairie, Shortgrass Prairie, and Sandhills). Over 350 citizens participated in these meetings, and on average over 100 comments were recorded from each meeting. Further, conservation practitioners from these four regions attended a two day workshop to provide input into region-specific conservation priorities, appropriate indicators of success, barriers, and other key elements.

Overall, 40 Biologically Unique Landscapes: (BULs) were selected to represent a range of Nebraska habitats and species. Multiple levels of analysis were used: a “coarse filter” approach identifies priority ecological communities, and a “fine filter” targets particular species at risk within these habitats. As such, comprehensive, multi-scalar ecological data is required. The NLP targets maximum opportunity areas to achieve conservation success. These are based on priority biodiversity components (species and/or habitats); places where these are known to occur; and where there is a high probability of successful maintenance. An interesting outcome of this is despite the strong prevalence of production agriculture in Nebraska, there are very few “farmers” (i.e., those engaged in row-cropping) represented in the NLP; except in corners left over from center-pivot irrigation, cropped areas are simply not seen as habitat of sufficient quality to warrant much attention. The focus was decidedly *not* on re-introduction, restoration ecology, or range expansion, but on maintaining already-viable habitats. Although there was extensive public input throughout the process, the selection of BULs was very much science driven, rather than through public input. Participants emphasized that they did not want the site selection to be a “popularity contest,” or otherwise subject to political debate. That the program was strongly science based was viewed as a further source of legitimization.

Opportunities and barriers to conservation were identified through the public input process described above. Some are widespread across the state: most notably, the dominance of private land resources, and the need for conservation practices to be voluntary and incentive-based, rather than regulatory. Other considerations were more site/region specific, or at least manifested relatively uniquely based on regional characteristics, and regional differences in the makeup of partnership opportunities. The relationships with partners helped to identify and respond to these in a coordinated way.

Plan Implementation: “Putting Boots on the Ground” to Build a “Culture of Conservation”:

As with the other cases we studied, The NLP sought the biggest impact for the resources expended. Two key potential criteria for success were identified: “putting projects on the ground” (i.e., engaging in conservation work), and “developing a conservation ethic.” Interviewees thus articulated the program in such a way that landscape change (considered as an ultimate “outcome” in the model shown in Figure 1) feeds back to inform and reshape dialogue and vision. Only if this feedback loop is observed (the indicators of this are discussed below) will the program be considered truly successful. Landowners may initially engage in projects because they are seen as economically beneficial, and/or because they have established a trusting relationship with the project proponent. Attitudinal change, for the participating landowners, occurs when they see that these projects work and may enhance their economic bottom line. Broader scale change occurs when they spread the word to their neighbors, and they take up projects on their own, with relatively little oversight or inputs from NLP personnel.

Because the NLP relies on a broad base of private landowner support, there is a need to continually build and maintain relationships with landowners. Building landowner trust over time is absolutely crucial, especially if the real goal is fostering long-term attitudinal change. One key labor element that coordinates and legitimizes the effort is the Coordinating Wildlife Biologist (CWB). CWBs play an absolutely crucial role in the NLP: each CWB is assigned to work in one or more BULs where they serve as bridges between local landowners, the partner organization for whom they work, and the State (which ultimately pays their salary through State Wildlife Grant funds). They represent the front lines of communication with the local landowners: raising awareness about project goals and opportunities, working with landowners to develop management plans (and often participating in the on-the-ground work), helping to coordinate relationships with other interested landowners, and generally being very visible in the local communities where they live and work.

To build local trust, the CWB must have to be seen as committed to the community: the local perspective is a crucial form of legitimization. Therefore, CWBs are expected to live in the communities where they are implementing conservation objectives. Trust is easier to build if one is seen as “local,” or at least having a rural background. Participating actively, on the ground, i.e., helping at prescribed burns, rather than being seen as a “bureaucrat” is also crucial to trust building. Partnerships help build trust as well: many landowners are more comfortable talking with representatives from Pheasants Forever, rather than those from the state government. Because CWBs embody this dual role, they have a degree of flexibility in how they present themselves.

It is important that conservation projects be relatively stable over time. Contract periods of 10 year duration are typically sought. Projects proceed in phases: much of the restoration work happens the first year; the landowner then gradually assumes more responsibility (e.g., for project maintenance). Projects initially focus on “low hanging fruit”: issues that landowners help to define and immediately recognize as beneficial. Attitude change is thus incremental rather than required at the outset. For example, red cedar invasion in grassland areas is seen as a problem both by grazers and Nebraska Game and Parks. Once initial successes have been achieved, it becomes the job of the CWB to show how these projects are linked to other land use practices (i.e., fire suppression). In this way, landowner thinking is gradually “stretched.” This results in widespread ecological awareness: project personnel operate under the assumption – usually supported – that private landowners seek to be good stewards, although they may lack some awareness of ecological connections.

Landowner to Landowner Learning: The program seeks to foster landowner to landowner learning: successful project outcomes should be taken up by neighbors and friends, rather than requiring a continued central role of agency/partners. “Fire Learning Networks” are a prime example of this. Building on pre-existing landowner networks is helpful in this regard. Ultimately, a few key landowners may become project “champions” and communicate the goals and successes of specific projects and the overall program. This is how a culture of conservation is built: landowners continue to participate in conservation, and encourage their neighbors to do the same, even as the incentive structure is reduced over time. The costs (financial and otherwise) of conservation shift increasingly to the landowner.

The Roles of Partners: The NLP is built on partnerships. Even diverse partners were found to have more in common with each other than is commonly assumed, especially as they build trust by working with each other over time.

*There are a lot of people who think they don't agree on very much...if you work on land you agree on most everything. It is amazing to me how many people think there ought to be tension between farmers, ranchers and conservationists but if you take somebody who really cares about the land...I don't care if they're farmers or ranchers or environmentalists...and you put them together very long...they'll end up...being friends and trusting each other.*

Having geographic and topically diverse partner organizations involved from the outset results in some key advantages. First, as described above, they may foster legitimization and credibility with landowners, as well as greater flexibility when approaching landowners. Partners also give the overall project greater responsiveness and “nimbleness”: NGOs often have much more flexible hiring regulations than state or federal government agencies, resulting in the hiring of NLP CWB positions through partner organizations. Certain partners will also have preferred access to particular forms of external funding. In some cases, partners have highly specialized roles: e.g., one coordinates project implementation, another coordinates outreach, another is responsible for research.

Partner trust is crucial. Trust is seen as non-hierarchical: trust and lack of trust is often more based on individuals (not) trusting individuals, rather than institutional relationships. As such, individuals/organizations were often “handpicked” to include “reasonable” people.

*A true partnership is where everybody's forgotten who they work for. When you see people interacting in a way that they're not worried about hierarchies and that sort of thing...they're just trying to get the job done...that's when they're really going to be the most robust. When you get to that point, when people actually have achieved a level of trust, that they can do good work together, then you can really get to doing more complex work.*

However, partnerships need to be able to evolve over time. Some initial partners were included precisely because they were suspicious and wanted to make sure they were included in program development. Statewide partners can also help smooth regional difference and be a valuable communication tool across regions. For example, NGOs that operate at a statewide level, but which are simultaneously “local”: (i.e., Ducks Unlimited) can facilitate local enthusiasm by pointing to “success stories”, even if those instances are not from the local area.

Key Considerations: Despite the obvious strength of the NLP, some potential problems were identified during the course of the interviews. First, interviewees pointed to high rates of turnover in key positions, especially CWBs. These positions at the interface between landowner and agency are very demanding, requiring ecological expertise, interpersonal skills, fundraising, and other administration. Yet, they are relatively poorly paying, with few benefits. As a result, most of the CWBs interviewed had been at their job for less than 2 years. This clearly runs



counter to the need for the gradual buildup of trust between the landowner and the NLP personnel over time.

*One of the glitches in the system was there was a lot of turnover in the coordinating wildlife biologists because the jobs weren't permanent...particularly when they're focusing on private lands...a whole lot of that is getting the trust of the local person...landowners and continual lack of continuity by switching over coordinators was really hampering and people took another six months to start doing it again. That's been a drawback...*

Second, project personnel pointed to new challenges associated with new types of landowners who were outside of the traditional agricultural-ranching based constituency. Many areas in Nebraska have experienced a fairly recent boom in recreational property ownership. These new landowners are seen as: (1) not returning as many benefits per unit of effort (with parcelization, their holdings are smaller); (2) potentially more difficult to work with, not having long-term connection to the land, and (3) having the desire and resources to make immediate and drastic changes. As such, they require a different approach.

Third, it can be difficult to coordinate between the center and the regions and reconcile expectations of how programs are supposed to work with on-the-ground constraints, or “*the view from the weeds*”:

*Since I worked on both sides of this and I have an opportunity to work at the national level quite a bit...I see that really kind of 30,000-foot level and I see as you get closer to the ground and then I hear the pains of the people who actually have to do it.*

It is clear that there are frustrations at the implementation level with a lack of understanding of state agency personnel located in Lincoln. The size and diversity of the state makes it difficult for CWBs and projects in the field to learn from each other, and to build from each others' successes. Variation across place in culture and land makes single programmatic thrust difficult. The best role of the state is to provide consistent standards.

Fourth, issues were identified with partners. Partner “drift” may be a problem: it is difficult to keep all partners engaged over time. That some partners become less involved may not necessarily signify a problem: their lack of engagement may signify that their concerns have been addressed. However, it may also reflect partner alienation. Partners may be reluctant to contribute their own resources: when state-based resources dry up, will the partnership? Partner diversity, though crucial to project success, may have its downsides: effective partners for planning may not be the most effective for implementation. Diverse partnerships and the multiple hats that a given CWB can wear carry the potential for conflicting expectations: CWB may have to answer to many masters. Finally, there may be problems with inherent variability in the playing out of programs, based on the variability across partners' institutionalized capacity, or in how partner concerns, landholding size, land uses vary fairly across the state.

Finally, research capacity may lag behind program activity. Some partnerships are emerging around questions of science and research. Often this involves contracting with universities throughout the region. Data collected by citizens does not qualify.

*The main dilemma was a lot of people have done a lot of monitoring and they don't collect data in a way that it's really analyzable and in the end a lot of this is very difficult to get tractable answers...to monitor a trend in a population whether it's going up or down or stable, but it's then much more difficult to say cause and effect. In other words, linking our actions in our action plan to what we've done on the ground to an actual change in the population is very difficult.*

Data gaps are not distributed regionally, (thus, data gaps appear to not differentially affect regional performance) but by topic area: less data exist in areas (for example) of invertebrates, and in understanding human attitude change. In particular, the crucial monitoring component of the NLP is lagging somewhat, for several reasons: (1) not enough resources exist to do effective monitoring; (2) it is difficult to establish cause and effect for broad landscape change (scale issues); and (3) there is no little in house expertise to monitor the crucially important attitudinal change dimension. This is mostly expressed via a series of anecdotes. This latter point is seen as potentially problematic, as it is recognized that the “effectiveness” of these programs (especially in the area of attitude change) is relatively poorly understood. There was a great deal of recognition of the importance of human dimensions-type research. If the ultimate goal is capacity building, and broad attitudinal change, there currently exists little capacity to document if (and when) it occurs.

### **Transportation and Wildlife in Vermont**

The Vermont Fish and Wildlife Department (VFWD) and the Vermont Agency of Transportation (VTrans) are engaged in a collaborative effort to improve the connectivity of fish and wildlife habitat, increase roadway safety by reducing wildlife collisions, and avoid unnecessary delays and unanticipated costs in transportation projects. The two agencies have approached this work as a capacity-building effort focusing on building relationships, increasing awareness of each other's needs, and improving communication and coordination, believing that these efforts will result in impacts on specific projects. In addition to the agencies, naturalists from Keeping Track (an environmental education organization) and the Vermont Reptile and Amphibian Atlas Project have played key roles in this effort by developing an implementing a training program.

This collaborative effort was underway well before Vermont's State Wildlife Action Plan (SWAP) was initiated. For this reason, VTrans worked closely with VFWD during SWAP development. Vermont's SWAP prioritizes wildlife connectivity and working with VTrans and others on transportation planning. It identifies roads and transportation development as a significant threat to wildlife and describes strategies related to its work with VTrans that are important in addressing this threat. State Wildlife Grant funds have played a minor role in supporting this collaboration, but that role could increase over time.

Formation of Interagency Steering Committee: The relationship between VTrans and VFWD was described as being “prickly” historically with most of their interactions revolving around

VFWD's efforts to ensure that VTrans met its regulatory responsibilities in relation to fish and wildlife.

*When I first started this job, the Department of Fish and Wildlife and the broader Agency of Natural Resources had a fairly prickly relationships with VTrans... It was typically contentious. VTrans didn't want to have to deal with the issues that we would raise, and we would have to sit at the table ...to argue and debate over to what extent things were going to be accounted for in the ... process and how things were going to be mitigated...things of that nature. [VT-03]*

Those interactions began to change in the late 1990s during their discussions over VTrans' plans to upgrade State Route 78, which ran through one of the most biologically rich areas of the state. Initially, these discussions were contentious, but VTrans' Director of Program Development (an upper-level administrative position) demonstrated a willingness to listen to VFWD's concerns. However, he was not inclined to see the value of modifying transportation projects to benefit wildlife and habitat:

*We had a director of program development ... he was an ex-military guy, really hardcore; engineering mindset...used to be a transportation planner and was dead set against the notion of the wildlife crossing business... I guess he just didn't see the value in it. [VT-02]*

During the period, this Director also participated in a Federal Highway Administration-sponsored "scan tour" of Europe, which focused on wildlife connectivity and how it related to transportation infrastructure. This experience, particularly his interaction with other participants, convinced him of the value of considering wildlife and habitat needs in transportation projects.

*[A staff member of a conservation organization] sat next to him the whole way ... She sat with him on the buses and at meals and they argued and really kind of got into it. He came back from that trip...he got religion on that trip. [VT-02]*

Relationships between the two agencies improved during the discussions over State Route 78, and the plans for the upgrade were modified substantially to address VFWD's concerns.

In an effort to continue the dialogue between the two agencies, they created an interagency steering committee, which meets quarterly and serves as a forum for discussion on a wide variety of topics relevant to transportation and wildlife. The role of the committee has since been formalized through a Memorandum of Understanding. Over the years, discussions on the committee have spawned a number of other collaborative efforts between the agencies.

After VTrans' Director of Program Development left the agency, the influence of the committee on VTrans' operations is perceived to have declined. The Director had been in a position of power within the agency, and although VTrans has other staff members who advocate consideration of wildlife and habitat, none has similar stature or influence as the former Director or Project Planning.

*At the time when the steering committee began there was a lot more support for these issues ... So I think the movers and shakers have changed over time on the VTrans side of things...As far as I'm concerned there has been less emphasis on the steering committee... We're seeing increasingly middle management as opposed to upper management actually attending those meetings...people with less and less power ... So it seems like the committee is being somewhat marginalized. [VT-01]*

The fact that the committee's role was formalized by the Memorandum of Understanding between the two agencies has helped to maintain some momentum to the work. The continued existence of the committee also has contributed to maintaining personal relationships between staff of the two agencies.

*The success of the steering committee is not just bureaucratic. It's also an interpersonal relationship. Vermont runs on interpersonal relationships so knowing who to call I think makes all the difference in the world. So yeah, the steering committee doesn't have as much power, but we know each other and it's that much easier to pick up the phone and call. [VT-01]*

Habitats and Highways Training Program: At about the same time that the interagency committee was being formed, the two agencies agreed to jointly sponsor a new "Habitats and Highways" training program. This primarily field-based educational program, run by two Vermont naturalists (with Keeping Track and the Vermont Reptile and Amphibian Atlas Project), aims to build awareness of and appreciation for wildlife and habitat and how they relate to transportation. It has focused primarily, but not exclusively, on VTrans employees and has enrolled nearly 90 participants over six years.

Both VTrans and VFWD believe this program has been very successful at its goals of building awareness and appreciation, and these qualities have translated into a greater willingness to consider wildlife and habitat needs in transportation work.

*You get the chance to have these discussions and raise awareness and I think it's through awareness that they see the value and once they have seen the value then they're willing to take action... You gradually build a critical mass of people who are willing to say, "Yeah, this is a valuable thing...if we could figure out how to do it economically, let's do it." That has happened. [VT-02]*

Sometimes solutions to problems caused by transportation projects have been simple, low-cost, and readily forthcoming after VTrans' staff members became aware of the need.

*The ultimate goal is for the transportation people to figure out ways that they can do their jobs that fit better with the environment. Some of the solutions have been extremely simple. We've had district guys saying, "Why don't we just put sand on the side of that slope there so the turtles don't have to cross the road to lay their eggs?"... Things like that. [VT-02]*

As with the interagency committee, the training program has helped build relationships between staff members of the two agencies. These relationships facilitate communication and are considered of fundamental importance to the success of this collaborative effort.

*[VFWD administrators] try to make appearances when they can. I think that helps a lot in terms of breaking down the wall between the VTrans people and Fish and Wildlife or Agency of Natural Resources. [VT-02]*

Although VTrans funded the training program annually from 2003 to 2008, it opted not to fund it in 2009 because of budget pressures. VFWD offered to fund the program using State Wildlife Grant funds if VTrans was willing to supply the required match, but VTrans was not willing to do so at that time.

Research: Through discussions on the interagency steering committee, a series of information needs have been identified, and VTrans has funded research to address a number of these needs. One major project was the development of a Wildlife Linkage Habitat Model, which predicts areas where wildlife crossings are likely on roadways. VFWD views this model as an important planning tool for towns and regional planning commissions as they make local decisions that could impact wildlife. The National Wildlife Federation has collaborated with VFWD to fine tune the model.

*I think that Wildlife Linkage Habitat Model is really the data that I use all the time in working with towns and regional planning commissions. It is incredibly important that we came up with that. I think that's really specific data. [VT-01]*

VTrans has funded other types of research including studies of species to determine how they will be affected by transportation projects and evaluations of the effectiveness of designs or structures intended to benefit wildlife.

Impacts on Transportation Projects: The collaboration between VTrans and VFWD has resulted in tangible impacts on a variety of transportation projects. Modifications to the plans to upgrade State Route 78 (discussed above) involved elevating a significant portion of the roadway through a critical habitat area.

*That project has huge impacts to wetlands ...any animal that's going to cross the road in Vermont was crossing at that one spot ... bear, moose...frogs...It was conceptually designed to include a 500-foot land bridge and several other crossing structures...as mitigation for impacts to wetlands, so instead of mitigating wetland impacts somewhere far off the site where they have to buy right of way and construct a new wetland that probably wouldn't serve as well as the existing one...they decided to mitigate right on site by building an elevated land bridge. [VT-02]*

The Bennington Bypass was designed to minimize wildlife crossings over the roadway.

*We got additional money into this Bennington Bypass to oversize the bridge span and to put up fencing. [VT-01]*

*The Bennington Bypass has several wildlife crossing structures built into it because of impacts. [VT-02]*

Vtrans switched from using plastic matting to natural fiber matting for erosion control in an effort to protect snakes.

***R1:** There had been some discussion among herpetologists about the impact of black plastic welded mesh on snakes, but when we had an incident where about 50 rattlesnakes got killed at this one site where erosion control matting had been put down...*

***R2:** We had discussed the problem of the welded mesh netting and Vtrans keep getting it hammered into their heads that it's important to control erosion and put this matting down so the soil doesn't end up in the wetlands and now we're telling them that this stuff is bad and it gets kind of confusing... We tried to change our standards back at [Vtrans] to eliminate it and just use the natural fiber matting. It didn't really go very far. After that incident where there were 50 water snakes killed, we put together a meeting to talk about it with ANR folks and key players at [Vtrans]... We had this meeting and there was no resistance at all and within six months we had the spec changed. But in that first meeting I looked around the table and everybody in that meeting at [Vtrans] had been through the training. Everyone was on board. [VT-02]*

A transportation project on Interstate 91 was modified to protect the only known population of black racers in the state. VFWD hopes to build off the existing collaboration to identify priority areas in the state where modifications to transportation projects are necessary to meet wildlife and habitat needs.

*There was a project on interstate 91 that involved the decommissioning of an old rest area ...and it happened to be in an area where we have the single known population of the black racer snake, which is an endangered species, and Vtrans was very good to work with on that one. We explained the situation to them and they said, "Well, let's figure out collectively how we can best deal with the conservation of that species and still work to realize the project interests." They funded the radio telemetry study of the snakes. They funded the habitat improvement work for the snakes on adjacent state property. They made adjustments to the design of the project...They went above and beyond the call on that one. [VT-03]*

Key Considerations: The primary catalyst for this effort was the Director of Project Planning for VTrans. As one respondent described it, he "got religion" on the European scan tour and had both the authority and personality to legitimize VTrans' consideration of wildlife and habitat needs when he returned.

*The take-home message for me is not to underestimate the importance or impact of a Dave Scott or champion in the corner office...it really changes the momentum...just having that institutional support from above. [VT-02]*

His involvement also helped make the resources of VTrans available to support this work.

*The Agency of Transportation has research grants ... that was a source of funding... Compared to conservation dollars Transportation is just rolling in money as far as we're concerned. They were a primary funder. [VT-01]*

The importance of this individual, however, made the effort somewhat vulnerable because his departure from VTrans is perceived to have hurt its momentum.

The improvement in relationships between the personnel of the two agencies has had both tangible and intangible benefits. Both VTrans and VFWD have specialized areas of knowledge that contribute to their collaborative efforts, and the relationships that have developed between staff have helped to increase their mutual appreciation for each other's knowledge. For example, VFWD has come to more fully appreciate the constraints under which VTrans must work.

*On the Fish and Wildlife side, getting our biologists ... to understand the considerations that the Agency of Transportation folks are dealing with has been useful... They're interested in these issues and they want to help, and they say, "It's going to cost us \$4,000 to put a new liner in that culvert and you want us to reengineer it so that it's at grade for allowing aquatic organism passage and that might cost \$20,000. So if I spend that much on this culvert there's a bridge somewhere else that's going to suffer. So can we come up with a cost-saving technique for making this happen?" Having our regulators aware that you can't just go calling for \$20,000 culverts all over the place without working with the agency I think has been useful. [VT-01]*

The collaborative relationship has also increased both agencies' appreciation for their areas of shared interest.. Although VTrans' priority concerns tend to be about the efficiency and safety of roadways, it came to realize that these concerns were often compatible with wildlife and habitat needs, which helped it justify consideration of these needs.

*He doesn't want animals on the road because of public safety...issues and liabilities for their agency. [VT-03]*

Relationships with local communities, which can influence the success of efforts to mitigate the impacts of transportation projects, are not strong. In one case, VTrans and VFWD collaborated on a new culvert that provided connectivity benefits, and the local town later built a subdivision in the area, which prevented the project from being effective.

*Agency of Transportation and Fish and Wildlife work together to oversize a box culvert to allow for wildlife habitat connectivity. Great project. A lot of money was spent. And then the town slated that area for subdivision development on both sides. The Fish and Wildlife/Agency of Transportation collaboration was meaningless without involving town planning. Finding ways that we can all connect in with regional planning and town-level planning has proved difficult. [VT-01]*

Finding better ways to integrate town and regional planning into the efforts to mitigate the impacts of transportation project on wildlife remains an area of interest for the future.

## Montana Conservation and Restoration Partnership

The Montana Conservation and Restoration Partnership, a formal partnership of 25 individuals representing government agencies, nongovernmental organizations, and private landowners, is working to identify and build the capacity necessary to achieve the objectives of Montana's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS). The work of the partnership is, therefore, closely related to the CFWCS itself. Because the conservation community considered the CFWCS an appropriate blueprint for fish and wildlife conservation in the state, representatives joined together into this partnership to lay the foundation for its implementation.

Other than being broadly interested in the implementation of the CFWCS, the partnership started with few preconceived notions about what types of capacity building would be needed. Instead, making decisions about what they needed to accomplish was an important part of their work.

Situation Analysis: The MCRP was an outgrowth of a situation analysis that preceded it. After the development of Montana's CFWCS, conservation interests wanted to ensure that the strategy would be implemented and sought to engage others in this work. The Heart of the Rockies Initiative, working with Montana Fish, Wildlife and Parks (Montana FWP) and the Five Valleys Land Trust, initiated a situation assessment in which the question of whether the CFWCS could be used as an "umbrella" for all of the conservation work going on in Montana was explored. A consultant was hired to interview over 100 people throughout the state representing organizations with conservation interests.

*Basically what we did with this project was to begin with the premise that the Comprehensive Fish and Wildlife Conservation Strategy... is larger than the State Wildlife Grant Program in Montana. ... It has the potential to be an umbrella for all of the conservation work that's going on in Montana, and ... if the department is going to be successful in achieving this strategy, the task is large enough that it has to do so in cooperation with other people who are doing conservation work in Montana. So what I ended up doing with this project was first, to go around the state, and I think I interviewed about 115 people... a whole spectrum of people.... essentially validating that hypothesis...that it can be an umbrella... that the notion of a partnership is a workable approach but it's still going to take work to make partnership happen. [MT-6]*

In November 2007, a meeting was held to validate the results of the situation analysis and assess what was needed to advance the implementation of the CFCWS. This meeting generated tremendous interest in the conservation community.

*We were kind of hoping we'd get 35 to 40 people to show up and 140 people registered! 140 people registered. [MT-08a]*

Participants in the meeting recognized that Montana FWP did not have the capacity to implement the CFWCS on its own.



*It started with the recognition that the comprehensive strategy wasn't going anywhere and further, it was never going to have a chance at being implemented if only the department was implementing it. There is too much stuff that needs to happen to advance the habitat, conservation and restoration work than the department can do. [MT-08a]*

But, on the other hand, they also recognized that considerable unrealized capacity existed because numerous other groups were also doing work that advanced the objectives of the CFWCS:

*There were people in a lot of programs out there that maybe they weren't doing work under the auspices of the Comp Plan but they were doing work that advanced the same goals...so that there was an opportunity to roll those programs and folks into the fold [MT-08a]*

Meeting participants recommended that the realization of this potential could be facilitated by the formation of a broad-based partnership to develop concrete proposals for building capacity for CFWCS implementation.

*They decided that they needed this committee to make some really specific recommendations about how to get this great comprehensive strategy down to ... a local level of getting things done and actually achieving conservation goals. [MT-03]*

The report was well-received and some of the credit for its success was attributed to the consultant who conducted the work. The consultant was a former Montana FWP employee who had considerable experience with and credibility among the members of the conservation community he had interviewed.

*He's a retired department employee. He knows all those folks ... and has been around the state for a long time. There's a fair amount of trust and comfort level with [him]. [MT-08a]*

The work was made possible with a grant originating with the Doris Duke Charitable Foundation through the Wildlife Conservation Society.

Partnership Formation: The MCRP was formed in response to the recommendations arising from the situation analysis. The creation of this partnership, which would have to be able to assess and address capacity needs, was challenging. Although the conservation community believed that Montana FWP had the necessary legitimacy to lead the creation of the MFWP, they were concerned that an initiative perceived to be a top-down effort of the government would not be widely accepted.

*To be honest I was a little cynical about the Comp Plan as a strategy for advancing anything, because at least in the West any plan stemming from government...with government leading the way...is kind of doomed to failure. My experience in the state and the agency and working in the legislature was things that came from the ground up*

*could be an advancement. Anything that had an agency stamp of approval on it as a plan was DOA. [MT-08a]*

Therefore, Montana FWP adopted the role of facilitating group formation, discussion, and decision-making, but avoided dominating the direction of the discussions and decisions.

*One of the things that came out of that meeting loud and clear was a validation of one of the things that I've heard during the conversations. That needs to be some kind of a statewide direction in support of this, but very clearly the statewide direction needs to be different from what they're used to giving in a statewide direction, and that it needs to be enabling and power supportive...not directive. [MT-06]*

Montana FWP has helped to fund the MCRP's activities, coordinated communication, and taken responsibility for logistical issues (e.g., finding meeting locations), but has attempted to participate as one organization among equals in the group's discussions.

Decisions about the composition of the group were considered critical. Because so much wildlife habitat in Montana is on private lands, the MCRP needed to be a broad-based partnership including not only organizations dedicated specifically to conservation, but land owners and industry representatives. A broad representation of interests was selected for the partnership to provide it with the necessary legitimacy and influence to shape policy recommendations. Most members believe the breadth of representation is sufficient.

*I think there's enough diversity ... with the makeup. I would give Fish, Wildlife and Parks credit for ultimately making the decision about who is going to sit on that originally. So I do think they did a nice job of at least selecting folks that had enough diversity that one group wasn't going to be too overbearing on another group. [MT-04]*

Some, however, believe certain interests are underrepresented.

*There's one local person who represents one of the development interests and he's always sort of tagged for representing that sphere. It's mainly because he's very vocal ... I think it would be nice to have a couple of other strong individuals. If you look at the list there are a lot of wildlife NGO kind of groups – not that we ever vote so it doesn't matter about being consensus driven, but it's sometimes hard to always say, "Wait!" [MT-07]*

The breadth of the MCRP is also a challenge because some of the organizations represented on it had had antagonistic interactions in the past.

*The main thing that caught my eye [about the CFWCS]... initially were the threats. As I looked through the threats a lot of it dealt with agriculture...not only conversion of native range to farm ground but there was a lot of information about over-grazing or poorly grazing... I ... said this is not reflective of what agriculture is doing for these species. We're the ones, in my view, that are protecting them. We're not the threat. So I started really on a pretty sour note with all of this. [MT-04]*

Consequently, a considerable amount of energy has been spent on building relationships between members and developing guidelines for discussion and decision making that are acceptable to all. Effective facilitation has been central to the success of these efforts. The MCRP's facilitator is the same consultant who conducted the situation analysis, and he is both well-acquainted with conservation issues in Montana and highly respected by MCRP members.

In addition, the decision-making rules of the MCRP have been very carefully thought out. The group is committed to making decisions on the basis of consensus, which allows any member to block any decision. A person who blocks a decision, however, must be willing to try to solve whatever problem is preventing his or her agreement. By all accounts, the efforts to ensure that discussions within the MCRP are evenly balanced have been successful. Members perceive the power as very evenly distributed within the group

Identification of Objectives: In general terms, the MCRP was formed with the intent of building capacity for the implementation of Montana's CFWCS, but before the group could identify strategies for building capacity, it had to answer the question of which types of capacity were needed.

*It was pretty open... We had these first three meetings where you're sort of figuring out the sideboards and we did some visioning efforts...what's the role of this group? Where are we working? Where are we not working? What are we tackling? ...which was a little challenging because I think everyone came in with slightly different perspectives on what we were going to be doing. [MT-03]*

The ambiguity of this task has made the progress of the group slow, but it has begun to coalesce around several objectives. To begin with, the MCRP decided to emphasize promoting voluntary conservation efforts, community-based conservation, and working landscapes. To accomplish this, it has focused on three objectives for capacity-building: (1) establishing a state-level funding source to support conservation work; (2) building support for conservation work among the public; and (3) serving as a clearinghouse for information about conservation-related activities to increase the efficiency and effectiveness of these efforts.

Some disagreement about these objectives exists. In particular, some members of the MCRP still remain unconvinced about the need for additional funding.

*We have two or three people in the group who are not convinced that we need any new money and we are committed to a consensus decision making model, so we will have to bring those people along before we can agree. I see that as the next big obstacle along the way. [MT-06]*

Addressing Objectives: The MCRP has formed committees to develop strategies to address each of its three primary objectives. Probably the most progress has been made toward establishing a state-level funding source for conservation work. One reason for this progress is that funding for conservation is viewed as one of the most critical needs. Another reason is that The Nature Conservancy and the Trust for Public Lands, which have representatives on the MCRP, have considerable expertise in assessing the viability of state-level funding initiatives, and this

expertise has been a resource for the group in its decision making. The MCRP hopes to decide which, if any, funding options to support in the near future.

Although progress also has been made toward achieving the other objectives, MCRP members in general view this progress as slow.

*I think everyone's a little frustrated right now because we're all so outcome oriented...we want to get things done and achieve something... if we're doing that through this collaborative process it takes a long time to get to know everybody, to feel comfortable, to feel safe, to develop these relationships, so I think everyone's chomping at the bit a little bit to get something done. [MT-03]*

In addition to the considerable time that was needed in the beginning of the process for relationship building, establishing rules for dialogue, and defining an agenda, the capacity of MCRP members to further the work of the group between meetings (which typically occur every other month) is limited by their other responsibilities. Some MCRP believe that additional support in the form of a paid staff member to carry out more of the work between meetings would help them make more rapid progress.

*I think what could ... help would be to have more than just a paid facilitator who orchestrates the meeting, but really a paid staff person to do more content thinking. [MT-07]*

Key Considerations: By all accounts, the work of the MCRP has benefitted from the fact that its members have been able to identify a positive, common agenda of encouraging voluntary, community-based conservation efforts and working landscapes. Strong differences exist between partnership members, however, about particular issues related to land use, and not all members agree about the importance of developing new state-level funding sources for conservation.

Some partners believe that the group will have to achieve some more tangible accomplishments soon to maintain the enthusiasm of its members. Although some members believe that the time and energy spent on developing an effective process has been frustrating, but necessary:

*The reality is collaborative processes take time. They're the kinds of things where if you want to make progress quickly, you have to go slowly, and we're going slowly. While that for me is frustrating at times, I'm not disappointed by that because we have done enough of this kind of stuff in Montana to realize that that's just the way it is. [MT-06]*

Others just see it as frustrating:

*We're still in a position where we're still developing what our role is going to be and how we're actually going to move forward and what we're actually going to do. I would say it's still in the infancy phase. We've developed the vision and certainly some white papers on what we're about, but actually putting the meat on it ...we're still working through that. [MT-04]*

The partnership believes that their work ultimately benefits from strong support among Montanans for the protection of their natural resources and way of life. Some partnership members expressed uncertainty, however, about the amount of support that existed for the work of their group in state government. Consequently, they were concerned that their recommendations might not stimulate action by the state.

*Well I think that having some upper-level management show interest and whether that's the director or up into the governor's office ... having them kind of report back and say, "Yeah, you guys are on track. Good work!" I think that would be a boost ... I think that's the biggest thing is that it's just an unknown. [MT-07]*

By most accounts, Montana FWP is the catalyst of the work of the MCRP. The initiation of the partnership by Montana FWP was seen as important given its statutory responsibilities to manage fish and wildlife. Rather than advocating for a particular course of action and recruiting and enabling others to pursue that course of action, Montana FWP has served as a catalyst by helping to establish a group that is capable of defining and pursuing a common agenda. Although it has tried to facilitate the work of the group, it has made every effort to avoid directing its agenda. FWP believes that for the work of the group to be successful, it must have a broad base of support, which the agency believes will only be achieved if Montana FWP does not direct it.

*I have intentionally tried to provide leadership by pushing things along and making things happen but not by directing... We, cooperatively with The Nature Conservancy and the Montana Association of Land Trusts and the governor's restoration coordinator went through a solicitation process and ... established the committee, but [I'm] not trying to drive this...trying to let it evolve. [MT-08a]*

### **Gopher Tortoise Restoration in the Southeastern United States**

In the southeast region of the United States, a multistate effort brought together state and federal government agencies with a broad spectrum of private interests to develop a Candidate Conservation Agreement (CCA) for the protection of the regionally threatened gopher tortoise and associated habitats, especially long-leaf pine forests. The successful development and implementation of a CCA is intended to render unnecessary the federal listing of species as threatened or endangered. All parties to the CCA have a shared interest in preventing federal listing, which provides the foundation for agreement on a conservation agenda. Gopher tortoise restoration in this region has been exceedingly complex organizationally. A large number of interrelated conservation efforts have varied widely in geographic scope and the degree to which they incorporate habitats and species other than gopher tortoises. We chose to focus on the CCA in specific as an effort to enable and legitimize gopher tortoise restoration throughout the region by contributing to strong regional partnerships (SERPPAS) more generally and the expansion of tortoise concerns to forested habitats. Because it has had such a strong regional presence, we focus special attention on the role of the military (Department of Defense and various branches).

Development of the Gopher Tortoise CCA: The CCA was a complex and partner-rich effort, spanning four states (Alabama, Florida, Georgia, and South Carolina); multiple federal agencies, including the U.S. Forest Service, U.S. Fish and Wildlife Service (USFWS), Department of Defense, and others; and private interests, especially private forest landowners. The intent of the CCA was to leverage existing conservation resources and to remain voluntary and flexible. (By law, a CCA cannot limit USFWS authority or supersede state level regulations.) In June 2005, a Gopher Tortoise Team (GTT) was established, and a Memorandum of Intent (MOI) was signed in 2006. The goal of the MOI included increasing communication, collaboration, and conservation and was driven by a common desire across the signatories to attempt to avoid federal listing. This agreement on a conservation goal enhanced effective collaboration on this and subsequent efforts. The CCA entails two primary elements that reflect our model (Figure 1). Actions include a range wide conservation and management plan (including monitoring efforts), and a focus on cooperation and collaboration (sharing information, encouraging uniform reporting, etc.) as enabling actions. Agreement on a conservation goal – a shared interest in avoiding federal listing – is assumed to be already present.

Management and Administration of Gopher Tortoise CCA: Partner-Intensive: The GTT bears responsibility for coordinating and implementing the CCA, without superseding the jurisdictional authority of state and/or federal authorities. The CCA period lasts 10 years. It makes recommendations but does not carry any additional regulatory authority. As such, legitimization does not lie with the CCA, but rather it helps build relationships, through building recognition of agreement on conservation goals. Each party on the GTT has a designated representative, but the team is chaired by state representatives on a rotating basis. State partners sought to maintain some level of control, and although this goal was consistent across states, there was a substantial state by state variation in how much relative emphasis was placed on the Gopher Tortoise CCA.

At one end of the spectrum, Florida has invested considerable resources in developing a comprehensive state management plan (completed in Fall 2007). The plan notes key threats (development results in vehicular mortality, incidental and non-incidental take; silvicultural lands can present a problem if the canopy closes). The goals of the plan include retaining viable populations in every county, stabilizing population levels at carrying capacity of protected habitat, retaining genetic diversity, and others. The plan allows restocking and relocation where densities are low and the habitat is suitable, but emphasizes upland habitat management. The plan facilitates coordination between local governments and the Florida Fish and Wildlife Commission with regard to site inspections (i.e., for building permits), outreach/coordination (e.g., development of education materials), fund-seeking, database construction, and law enforcement.

The private landowner plays a major role in the success of the CCA. A unique element of the CCA allows interested landowners to participate in a voluntary and proactive manner. In collaboration with the aforementioned parties, landowners may develop and agree to a CCAA, or Candidate Conservation Agreement with Assurances. This element of USFWS implementation of the Endangered Species Act is a provision for incentives for non-federal landowners to help declining at risk species. The “Assurances” language represents one such incentive: the “certainty that no further restrictions beyond those agreed to in CCAA will be imposed later if

species does become listed.” This thus represents a form of insurance and also allows a certain level of incidental take.

Military interests played a large role in the development of the CCA as well as gopher tortoise restoration in general. Not only are five of the 13 members of the GTT based in the military, but numerous installation-specific management plans have been developed. The military also plays a large role in the Southeast Regional Partnership for Planning and Sustainability (SERPPAS), which was very active in the CCA but also branched out to engage related issues of sustainability, as described below.

Beyond the Gopher Tortoise: Long Leaf Pine Conservation: Interviewees and analyzed documents emphasized that the Gopher Tortoise CCA was only one aspect to a larger story. The Gopher Tortoise requires intact long leaf pine (LLP) habitat, habitat also used by the red-cockaded woodpecker, which engendered a separate Endangered Species Act controversy. Noting a historic dramatic decline in LLP (estimates suggest that only 3% of the original habitat remains), in 2007, the Regional Working Group for Americas Long Leaf was formed to develop a range-wide conservation plan. The vision of the working group emphasized sustaining functional LLP ecosystems with full spectrum of ecological, economic, and social values. In particular, the LLP invokes a cultural traditional heritage emblematic of the south’s “piney woods”: there is more at work here than trees and turtles. In contrast to the gopher tortoise example, state agencies play a less apparent role; the working group emphasizes various non-government organizations, federal, and private interests, and SERPPAS.

The working group published a conservation plan in March 2009. It seeks to integrate existing plans and programs and thus serve as a catalyst. The plan seeks to double LLP acreage within 15 years across its range, using a science based approach (including monitoring and evaluation criteria). The plan emphasizes site-based conservation, with aggregation of site-level outcomes to form sustainable landscapes by seeking connectivity across sites. It embodies a mix of public and private sector involvement: about 45% of LLP habitat is on public lands. The plan seeks to build on core public lands (“significant geographic areas”) and emphasize better agency coordination of diverse activities (including changing demands for forest products and creative silviculture and fire management practices). Private lands approaches emphasize managing fragmentation, which is a challenge, given recent increases in divestiture of production timber land. Even smaller areas of private land can serve as crucial connectivity points. The plan also provides landowner assistance: technical and otherwise.

SERPPAS was a major actor in the LLP conservation plan. SERPPAS has no stand alone regulatory authority, but operates through networking of well-placed individuals within member organizations. They come to agreement about priority areas (including gopher tortoise and LLP) and then make recommendations back to their parent organizations. SERPPAS saw the LLP case as a real test due to complexity and a logical next step following successful completion of the gopher tortoise CCA. Successful projects are used to set the groundwork/leverage new projects.

The Military’s Role: The gopher tortoise/LLP work had a very strong military presence. Many of the Significant Landscapes identified for the LLP are on military bases, and the representation

of military groups in SERPPAS and the GTT has already been noted. The Department of Defense (DoD) has been broadly involved, as have specific branches of the military (Army, Air Force, Marines, Navy) on an installation-specific basis. This partnership is relatively new and is based on a convergence of conservation-based goals with goals that emphasize military preparedness and the challenges to it posed by changing land use practices in the areas around bases. The DoD has increasingly recognized that encroachment of (sub)urban uses around bases has reduced military capacity to train effectively, as regular activities (e.g., ordinance detonation, low level flights, communication) can be challenging in more populated areas. Simultaneously, suburban development around military installations has increasingly resulted in these lands becoming the best available remaining habitat for species such as gopher tortoise and long leaf pine. As such, there was a real convergence of conservation goals with military readiness goals: simply put, each had a strong interest in reducing sprawl and habitat fragmentation in the areas adjacent to installations.

This represents a conceptual and geographic expansion of thinking on the part of the military: some suggest that there had been a historical legacy of installations not working very effectively ‘beyond the fence.’ In the words of one interviewee, this was an ‘ah ha’ moment on the part of the military that what happens off base is crucial and worth devoting resources to. SWAPs contributed to this increased emphasis on partnerships and communication.

A number of specific statutes relate to military conservation. On the base, the Sikes Act legislates Integrated Natural Resource Management Plans (INRMPs) for conservation on specific installations. These emphasize “sustained use of a landscape necessary to support military mission in accordance with accepted stewardship principles” and must be agreed upon by the USFWS and state agency.

Moving beyond installation borders has been a key development. The Readiness and Environmental Protection Initiative (REPI) is part of the Sustainable Range Initiative (SRI) that “works to ensure the long-term viability and continuity of military training areas.” It notes that incompatible growth restricts testing and training: lights, houses near drop zones, competition for radio frequency, complaints from neighbors about noise, dust, and air flights. Further, installations may become “sinks” for endangered species as other habitat is lost. REPI thus extends the reach of the installation by creating buffer zones, habitat linkages beyond the installation borders. This program represents an opportunity to create and maintain community partnerships. Specifically, it authorizes military department to sign agreements with state and local governments, as well as private conservation groups to limit incompatible development, through (for example) conservation easements but does *not* authorize land acquisition. Funding for this program has increased rapidly in recent years, from \$12 million in 2005 to \$56 million in 2009, and leveraging is strong as well: the 2008 annual report revealed a 135% match from REPI funds, including 16 state/local government partners, and 22 NGO partners.

REPI also has a strong educational component (to “educate critics and key opinion leaders”). Base tours are offered, and a series of educational primers has been developed for key personnel. These have been created jointly with partners and include “*Working with Land Trusts*” (with The Land Trust Alliance); “*Working with Regional Councils*”: (with the National Association of Regional Councils); “*Working with Local Governments*” (with The International City/County



Management Association and The National Association of Counties); and others. Each of these recognizes and explains the particularities of coordination with local and regional governments and non-government organizations. The key to all of these is that the DoD is working proactively at ‘moving off the base’: giving installation leaders (and newly created community liaison personnel) the tools to deal effectively with encroachment thru multiple channels (land trusts, regional planning authorities, local and state governments). This has been sometimes seen as a challenge to established military partners’ priorities, but has opened many new avenues of collaboration, based on heretofore unrecognized shared interests between military preparedness and conservation objectives.

Overall Assessment: The process of the development of the GT CCA was viewed as a success in and of itself: it brought together a set of collaborators that was diverse with respect to their geographies, interests and institutional mandates. The GTT continues its work implementing the specific recommendations of the plan, and elements are in place to regularly assess its effectiveness. As a further indicator of success, interviewees emphasized that the CCA helped catalyze additional collaborative work, and move beyond the gopher tortoise to emphasize its habitat: long leaf pine. This helped motivate additional collaborative work. Particularly noteworthy is the integration of the military perspective. Military preparedness and environmental conservation have often been seen as at odds with each other, but their collaborations have helped to foster a recognition of common interests in reducing habitat loss through land conversion, as well as the mutual need to engage private landowners.

## **Social Network Analysis**

Figures 11-15 are social network maps for the five cases for which we conducted social network analyses. In each figure, the circles represent actors involved in the collaborative conservation effort that is the focus of that case. Actors include both individuals and organizations (or organizational divisions). The colors of the circles represent organizational affiliations (for individuals) or organizational types (for organizations). A line connecting two circles indicates a linkage between the actors based on the level of interaction between individuals or organizational representatives involved in the case. The size of the circles represents the actor’s closeness – a measure of how closely connected the actor is with the other actors in the network (through the linkages depicted).

The specific networks depicted in each figure are as follows:

- Figures 11 and 12 depict the interactions between individuals in two site specific on-the-ground habitat restoration efforts – Grand River Grasslands and South Puget Sound Prairie Restoration.
- Figure 13 depicts the relationships between the Vermont Fish and Wildlife Department and various divisions of the Vermont Agency of Transportation (as well as other actors) as they have been established through participation of representatives of these organizations in the Habitats and Highways Training Programs over six years.
- Figure 14 depicts the network of organizations that contributed to the development and implementation of the Nebraska Game and Parks Commission’s Nebraska Natural Legacy Project.

- Figure 15 depicts linkages between the organizations who participate in the Montana Conservation and Restoration Partnership.

The value of these maps lies in the generalizations about the forms of collaborative partnerships that can be drawn from them collectively. Past work in environmental and natural resource management has described various forms of management efforts. Michaels et al. (2001) described a “hub and spoke” pattern in which one actor played a very central role, and the other actors primarily interacted with this central one. Newman and Dale (2005) postulated that successful networks need to maintain a diversity of linkages between stakeholders including both bonding links (links among members of homogenous groups), which can help to maintain trust, and bridging links (links between heterogeneous groups), which can help to make resources more accessible. Bodin et al. (2006) went further in arguing that certain network characteristics, such as high density (high number of links between stakeholders), may contribute to some purposes but detract from others. High network density may help facilitate trust, make collective memory and experiences accessible, and provide buffering capacity in case actors are lost. Low network density may facilitate roles for actors with different types of knowledge and capacity and increase opportunities for responding to changing needs. Lauber et al. (2008) reported that the structures of networks in community-based natural resource management changed as the functions that they were filling evolved. The key points of these studies are that network structure is important and that networks with different structures and different types of stakeholders may be preferable for different purposes.

Our social network analysis revealed both similarities and differences in network patterns across cases. In no cases did a single actor occupy a uniquely central role, meaning that a hub and spoke pattern as described in earlier work did not exist. Instead, multiple actors representing different organizations had central roles in the network. However, not all actors were equally central in any network, meaning that the roles of the actors were not all balanced; actors exhibited varying levels of engagement in the collaborative efforts.

The cases exhibiting the most balanced roles for the actors were the Montana Conservation and Restoration Partnership (Figure 15) and the Nebraska Natural Legacy Project (Figure 14). The activities of these cases involved more capacity building than the other cases. The MCRP sought to reach agreement about how to build capacity for the implementation of Montana’s CFWCS. The NLP sought to develop a commonly accepted framework that could serve to encourage habitat restoration on private lands in a variety of landscapes throughout the state. The need to reach agreement on objectives and strategies in each of these cases likely favored more balanced involvement of key conservation actors. Conservation agendas are more likely to gain legitimacy if they have widespread support among diverse conservation interests.

The on-the-ground habitat restoration efforts showed more variability in the engagement of various actors. In each of these cases, the conservation agenda was understood and accepted by the various actors, and the work of the group primarily focused on achieving the on-the-ground outcomes. Consequently, engagement of actors was based not in the need to develop agreement about an agenda or approach to conservation work, but in determining or clarifying what each actor could contribute to help achieve that agenda. Given that actors bring various attributes

(funding, knowledge, control over land, etc.) to conservation work, it is logical that their level of engagement varies.

These findings indicate that the types of interactions to promote in collaborative partnerships may vary depending on the objectives of particular partnerships. When partnerships must establish a common agenda (regarding what needs to be accomplished or how it needs to be accomplished), widespread engagement of diverse interests may be particularly important. When the agenda is readily accepted by the necessary actors, targeted engagement of those with critical skills and resources at key points may be more crucial.

The social network maps shed light on the roles of catalysts. In cases where the generally agreed upon catalysts were included in the maps (a representative of The Nature Conservancy in the South Puget Sound Prairie Restoration effort, Figure 12, and the Montana Department of Fish, Wildlife and Parks in the Montana Conservation and Restoration Partnership, Figure 15), the catalysts have central roles in the networks, but not more so than a number of other actors. This finding indicates that catalytic roles do not depend on dominance in the networks. While catalysts are well-connected with other actors in the network, they do not monopolize that position. Factors that distinguish catalysts are discussed in the next section.

## **Catalyst Analyses**

Various past studies have noted the importance of key leaders, “catalysts,” or “spark plugs” to the success of conservation work (Lauber and Brown 2004, Raik et al. 2003, Selin et al. 2000). In each of our case studies, we evaluated whether recognizable catalysts were present – specific individuals or organizations that others involved with the cases believed played a critical role initiating or sustaining the collaborative effort. Recognizable catalysts were present in all but the Grand River Grasslands case. We chose three cases (South Puget Sound Prairie Restoration, Montana Conservation and Restoration Partnership, and Vermont Transportation and Wildlife) for more detailed evaluation of the catalyst role. In this section, we discuss the results of these analyses focusing on the similarities and differences in the roles which the catalysts played across cases.

The roles played by the catalysts are most easily understood with reference to our process model (Figure 1). In each case, the catalyst addressed a different “choke point” in the conservation process – a factor or ingredient that was constraining the effectiveness of the particular effort.

### **South Puget Sound Prairie Restoration**

In the South Puget Sound Prairie Restoration case, the person who was generally recognized as the catalyst worked for The Nature Conservancy. Before he became involved, several organizations had been working towards prairie restoration, but they were doing so more or less independently. The program was described as being in an early stage of development.

*At that time the South Sound program ... was in its infancy. [The catalyst] had come a couple of years before then. At that point it was largely cutting Scotch broom in key prairie sites and trying to identify our niche with the other partners ... Ft. Lewis primarily, but then*

*the other individual owners... Thurston County, state DNR, state Department of Fish and Wildlife. [PS-03]*

The Puget Sound catalyst recognized that the infant effort would benefit from more coordination of the various restoration efforts. He had a clear idea of the type of process that was needed to encourage collaboration and coordination – a process involving both relationship building and dialogue.

*This is the framework of our cooperative strategies...a three-tiered thing...information transfer, linking of entities together, and generating incentives to implement identified actions. [PS-05]*

He worked to develop an effective process using a variety of strategies. He recruited individuals and organizations to be involved in these efforts. He played a key role in the formation of the South Puget Sound Prairie Working Group, which served as a primary forum for communication among organizations working on restoration for a number of years. He also fostered a number of other opportunities for information exchange.

*We do have informative web sites and a listserv and we've held several targeted workshops, meaning that they're either targeted at a single species or issue...It's important to get someone to run the meeting and bring everybody together, provide a forum for presentation and discussion, so that means engaging people to present about whatever the topic of the meeting is, and identifying those shared goals between those parties ...results in synergies... "We're working on that"... "Oh, we are too"...sharing the best management practices, etc. Often has a field trip component so it will be presentations in the morning with an afternoon field trip. [PS-05]*

He had the force of personality to actively engage other individuals working on these efforts.

*I think it was largely [the catalyst's] efforts and enthusiasm that started bringing in more and more partners ... His personality and assertiveness. I suppose you might lump all that under leadership qualities. [PS-04]*

The restoration efforts built up momentum after he became involved.

*I think previously we were pretty good at making solid ecological and scientific recommendations but weren't able to then take those and do something on the ground. [The catalyst] expanded the collaboration to bring in some funding and some people and volunteers I think to get work done on the ground. Everybody knew Scotch broom was a problem on the prairies. We didn't have a good way to tackle it on a very big scale ...and that led to collaboration...pretty significantly increased the capacity...from Fish and Wildlife to TNC to the county...It created more real opportunity to work across those agencies...I think that's a really significant plus ...It just took us from DNR working here or WDFW working over here to... we began to do sharing for our common good across those boundaries. [PS-04]*

## Montana Conservation and Restoration Partnership

In the Montana Conservation and Restoration Partnership, the catalyst, who worked for the Montana Department of Fish Wildlife and Parks (FWP), played a somewhat different role. Although a variety of conservation actors in Montana were interested in fish and wildlife conservation in general, and implementation of the Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) in particular, the catalyst built upon the results of a situation analysis he helped to organize. Based on that analysis he recognized that the capacity for conservation was limited.

*We had intended to try to quantify what sort of funding was available to implement this strategy and then use that to do a gap assessment...figure out what was available and what was needed...what the gap was and use that as the foundation for driving forward with some new funding proposals. What we found was that the department really couldn't quantify what it was going to take to implement the plan because it really isn't a plan at this point. It's a strategy and isn't tied down to discrete goals and actions... Everybody was on board that there weren't enough resources, so it didn't make much difference in the end in terms of driving the agenda. [MT-08]*

He realized that any attempts to build capacity for conservation would require widespread agreement of diverse stakeholders on a common approach for building capacity.

*In Montana, if you want to get something passed from the legislature, you build the coalition from the ground up that neither the legislature or the governor, regardless of which party is in control, can say no to... I've done that enough over the years...just the recognition that that's the way to be successful if we want a new funding program. Given all of that the way to start was by talking with people. [MT-08]*

He played an instrumental role in the subsequent creation of the Montana Conservation and Restoration Partnership. In both cases, he sought to ensure that these efforts were built on an open and balanced dialogue and were not dominated by any particular interests, such as Montana FWP. Because he worked for Montana FWP, he was especially diligent to ensure that he would not dominate the dialogue. He also avoided assuming the role of a facilitator.

*Top-down state-driven isn't going to make this happen. We've hired a facilitator... I have intentionally tried to provide leadership by pushing things along and making things happen but not by directing. [MT-08]*

Participants in the process generally agree that the efforts to build relationships and encourage open dialogue among diverse interests have been very successful.

*I think people have been fairly positive about the personal relationships that are involved and have recognized the diversity of the group as a strength and respect the facilitation. [MT-04]*

## Transportation and Wildlife in Vermont

In Vermont, the limiting factor constraining attempts to better integrate wildlife and habitat considerations into transportation decision making was the support or legitimization of these efforts by the Vermont Agency of Transportation (VTrans). In this case, the catalyst was an upper-level administrator who was in a position to legitimize these efforts once he, as one respondent described it, “got religion” about the topic.

*[The catalyst] was the corner office skeptic. He was the director of programs ...so he was making decisions. It was crucial to have somebody in the decision-making role at that level support it and especially one who came from that skeptical perspective. [VT-02]*

In addition to his position, his forceful personality enabled him to influence his agency’s direction.

*He was a very influential character at VTrans...a real sort of leader type. He liked being a leader and people really liked him. [VT-02]*

Given his position in VTrans, after becoming convinced of the value of a particular idea, he could make those resources available to actualize it.

*We formed this committee that would meet four times a year and we’d come up with ideas to discuss and we had [the catalyst] sitting in the Captain Kirk chair at the end of the table, and he loved that, and he would say it was a good idea or a bad idea. And that’s where we presented the idea of doing our regional conference and he said, “Take \$10,000 of state administrative funds and hire a conference organizer and put it together.” [VT-02]*

As in the Puget Sound and Montana cases, the catalyst in Vermont worked to engage a variety of actors in dialogue about the common issues they faced.

*My understanding of the history is that [the catalyst], who worked for VTrans, was a real proponent of wildlife crossing work and was pretty high up in VTrans and he really made sure that the steering committee was active and had a lot of power. [VT-01]*

However, in this case, one key reason for the catalyst’s effectiveness was also his individual authority and control over resources. Consequently, the effectiveness of the collaborative partnership was somewhat vulnerable after he left the agency.

*The Achilles heel was [the catalyst], or anyone in this position, is they’re a political appointment. So they can come and go at the will of the governor. [The catalyst] was released from his position some time ago now and since then the interest of VTrans, while it’s still there, has not been the same as it was with [the catalyst]. [VT-03]*

## Cross-case Comparison

The roles played by the catalysts in each of these cases were unique, but certain similarities also existed.

- Each catalyst represented agencies that were viewed as having legitimate roles in the conservation issue. In Puget Sound, the catalyst worked for The Nature Conservancy, which both owned one of the remaining parcels of native prairie in the area and was widely respected for its conservation expertise. In Montana, the catalyst worked for Montana FWP, which ultimately was most responsible for the development and implementation of the CFWCS. In Vermont, the catalyst worked for VTrans, which had authority over state transportation activities.
- Each catalyst had sufficient support for being engaged in the collaboration from his or her employing organization.
- Each catalyst demonstrated a strong personal commitment to a particular conservation agenda.
- Each catalyst recognized a factor that was limiting conservation progress: a lack of coordination in the Puget Sound, the need for agreement about building capacity for the implementation of the CFWCS in Montana, and the need for VTrans support and resources in Vermont.
- Each catalyst was in a position to address the limiting factor. In Vermont, the catalyst was in a position of authority and so could provide support and resources from VTrans as he deemed appropriate. In the other two cases, the catalysts had clearly articulated visions of how to design a process that could fill the need. In Puget Sound, the catalyst advocated a three-tiered strategy of creating linkages, information exchange, and providing incentives. In Montana, the catalyst advocated a decision-making process based on a balanced dialogue among diverse interests.
- Each catalyst paid considerable attention to the social foundation of conservation, working to establish relationships and encourage dialogue, both formally and informally.
- Each catalyst exhibited leadership qualities, demonstrating willingness to orchestrate those social processes that were necessary to address the needs they perceived.

As noted above, one of our findings was that an identifiable catalyst was not present in every case, and it is instructive to consider why a catalyst was not apparently needed in the Grand River Grasslands. In keeping with our analyses of the other cases, the simplest explanation is that this case was not constrained by any particular limiting factor. Although no single critical actor was identified in this case, it was generally agreed that the three most influential actors were the Missouri Department of Conservation, the Iowa Department of Natural Resources, and The Nature Conservancy. The common denominator connecting these three actors is that they all owned or acquired significant prairie parcels in this relatively limited geographic region (70,000 acres). Therefore, they each had the authority to control land-use practices in portions of the landscape. Furthermore, they each entered this collaboration with a shared interest in prairie restoration in general and prairie restoration in this region in particular (because it was one of the best sites for prairie restoration in both states). Given that a core of actors existed with common conservation interests and each with the power to act to achieve those interests, this case faced fewer limitations than some of the others.

## Keys to Success

Ultimately, the aim of this project was to increase understanding of how to promote successful collaborative SWAP implementation efforts. In part, promoting these efforts requires an understanding of the factors that distinguish more and less successful collaborative SWAP implementation efforts. Although our six case studies focused only on efforts that were generally perceived as successful, we collected data on factors that distinguished these cases from the less successful ones. We summarize our conclusions on these factors here.

As part of this discussion, we have to consider the definition of “success.” Our initial inclination was to judge the success of efforts according to whether they accomplished their objectives. In many efforts, however, objectives were not clearly defined. Although partners tended to agree on broad conservation goals, more specific objectives evolved as different partners became engaged in the effort, new information became available, and the condition of the resource changed. Therefore, we relied primarily on the judgments of collaborators in assessing the degree to which the efforts in which they were involved were successful. Those judgments may differ from one collaborator to another. For example, in an effort focused on restoration of native grasslands, one collaborator may consider reestablishment of native grassland fauna as fundamental to the effort’s success, while a second may seek to restore native vegetation, and a third may simply seek to enroll agricultural lands in land conservation programs.

None of the “successful” cases we studied were perceived as having accomplished everything they wanted to accomplish. Nor were any of the “unsuccessful” cases perceived as having accomplished nothing. All efforts faced constraints and limitations. Therefore, to some degree collaborators’ judgments of success were influenced by their willingness to accept progress toward their goal as an important accomplishment in and of itself.

However, we reached a variety of conclusions about those factors that tended to distinguish those cases that were perceived as more and less successful. Many of these factors are represented in our model of the collaborative SWAP implementation process (Figure 1). Each of the boxes in this model represents an element or ingredient that contributed to the success of these efforts. When any element or ingredient was missing or limiting, efforts tended to be less successful. Some ingredients, however, were more frequently influential than others.

In most cases we studied, including the successful ones, a lack of available labor was a constraint. Accomplishments were typically limited by the amount of labor collaborators were able to devote to the efforts. The collaborative SWAP implementation efforts we studied were only one part of the work responsibilities of almost all collaborators. In some cases, collaborative efforts found ways to address their need for additional labor by funding positions which were exclusively devoted to the effort.

Similarly, shortage of funding was frequently mentioned as a constraint. This finding was particularly true of the 144 cases we identified in our initial series of telephone interviews. Many of our informants maintained they could accomplish more if more funding were available. In our six intensive case studies, however, funding was perceived as much less limiting. In the



Grand River Grasslands, interview respondents argued that funding available for private land conservation contracts exceeded the number of landowners willing to enter into such contracts. In the South Puget Sound, the U.S. Department of Defense's Army Compatible Use Buffer Program supplied much more funding for restoration work than many restoration efforts enjoy. In Vermont, the funding available for conservation work from the Agency of Transportation exceeded what the Vermont Department of Fish and Wildlife typically had available.

Another factor that distinguished the more successful cases was the degree to which the key actors involved in the efforts were recognized as legitimate. In the Grand River Grasslands, three organizations (the Missouri Department of Conservation, the Iowa Department of Natural Resources, and The Nature Conservancy) all owned significant acreages of land. This land ownership gave them a certain degree of standing or legitimacy in the area, which several respondents believed aided their conservation work. One respondent compared the work in the Grand River Grasslands to another prairie restoration effort in Missouri in which all land was in private ownership. He attributed some of the lack of progress toward restoration goals in this region to this lack of land ownership and the associated lack of standing of conservation actors that it implied.

Several respondents argued that conservation efforts benefit from having a "handle" – a key species or resource that can serve as a foundation for building support and securing resources for conservation work. In the South Puget Sound, the conservation efforts gained momentum when golden paintbrush was listed as a federally endangered plant species, legitimizing the involvement of the U.S. Fish and Wildlife Service and serving as the foundation for arguments to secure resources for prairie conservation. In the Grand River Grasslands, interest in greater prairie chickens has helped build support for prairie restoration. In the southeastern U.S., gopher tortoises have provided a focus for the restoration of the ecosystems of which they are part.

The factor that was probably most frequently mentioned as contributing to successful conservation efforts was the quality of working relationships between collaborators – a factor that has been noted frequently in past work (Curtis and Lockwood 2000, McCool and Guthrie 2001, Raik et al. 2005a). Many respondents stressed the importance of collaborators working well together and respecting and liking each other. Relationships provided a foundation for dialogue, which was critical to these efforts. Many of these relationships had endured for years. In contrast, one of the explanations offered for the lack of success of other efforts was the poor quality of relationships and the lack of trust between potential collaborators.

Closely related to the quality of relationships was the level of agreement among collaborators on a common conservation agenda. Successful efforts were characterized by strong agreement about what needed to be accomplished, both over the short and the long term. Respondents argued that agreement on a common agenda helped bolster arguments for access to resources to support conservation work.

One factor that contributed to the ability of collaborations to reach agreement about conservation needs or approaches was the willingness of collaborators to consider other actors' interests as well as their own. In successful efforts, collaborators did not limit their focus to their own agenda but worked to help other individuals accomplish their goals, too. For example, in the

South Puget Sound, one respondent portrayed the prairie restoration efforts there as one of the most successful examples of the implementation of Washington's SWAP primarily because the Washington Department of Fish and Wildlife was willing to look beyond the relatively narrow focus of its SWAP and consider other interests. In this and other successful cases, the SWAPs served as a framework for identifying area of overlapping interests but were not viewed as a complete blueprint for conservation work in a particular region.

Closely related to this point is the importance of flexibility in successful conservation efforts. All of the efforts we studied adapted to their circumstances and evolved over time as needs and conditions changed. Many established a record of success by focusing on the "low hanging fruit" – those ends which could be accomplished quickly – and later progressed to focus on more challenging tasks. For example, in the Grand River Grasslands initial work focused on land acquisition and habitat restoration on publicly and TNC owned lands. Only after establishing a record of success in this work did the collaboration begin to focus more heavily on habitat restoration on private lands. The private lands work, like many challenging conservation efforts, required that effort be expended on developing the social foundation of collaboration by cultivating relationships with individual landowners before conservation outcomes could be achieved.

Most successful efforts, therefore, involved both a clear recognition of the type of work that was necessary to make progress toward ultimate conservation goals and a willingness by collaborators to be patient in this work. Every conservation effort is a work in progress. Efforts perceived as failures may be those that are overly ambitious and either do not recognize or are unwilling to address the fundamental barriers to on-the-ground conservation in an area.

## **Practical Guidance**

This section reiterates some of the principal findings of our research and their practical implications for SWAP implementation. (Lauber et al. 2009 also provide a "practitioner's guide" to collaborative efforts to attain SWAP priorities.) The SWAPs provide a resource for species and habitat conservation. They articulate and legitimate a common agenda for conservation. The linkages between particular conservation efforts and SWAPs can be used to secure support and unlock resources. Therefore, practitioners gain advantages by demonstrating the relationship of their work to the SWAPs.

Certain broad steps may be taken to help practitioners better link their conservation work to the SWAPs. SWAPs must be revised at least every ten years. States prepared their plans initially with varying levels of collaboration with other actors in the conservation community. Although collaborative plan development may be more challenging to manage, it provides benefits. In particular, it helps establish broad agreement about conservation priorities. Plan revisions, therefore, if done collaboratively, provide opportunities to maintain and strengthen relationships among members of the conservation community and build awareness and ownership of SWAP priorities. Both awareness and ownership can increase opportunities for collaborative SWAP implementation efforts.

Even in cases in which the SWAPs are not undergoing revision, increasing awareness of the priorities contained therein could help other conservation actors link their work with SWAP priorities. One challenge to increasing this awareness is the sheer size of some of the plans. The emphasis on making SWAPs comprehensive involved sacrificing to some degree the capacity for states to communicate their SWAP priorities clearly. Developing approaches to better enable conservation actors to recognize areas of overlap of their own priorities with SWAP priorities could benefit these efforts by leveraging resources and facilitating coordination and recognition of shared interests.

With regard to individual conservation projects, we see great practical utility in using our findings to identify the elements necessary for successful collaborative SWAP implementation efforts. Our model demonstrates the factors that contribute to the attainment of conservation objectives. It can be used to inform checklists of elements that contribute to the likelihood of success. By using our model in this way, practitioners can become more aware of the importance of achieving certain enabling objectives to further their work. Our model can also help practitioners become more aware of factors that may be limiting the success of their efforts.

Other literature has portrayed similar ideas in terms of the different types of learning that must occur in successful environmental or natural resource management (Fiorino 2001, Glasbergen 1996, Lauber and Brown 2006). Technical learning focuses on identifying actions that will help achieve on-the-ground environmental or natural resource objectives. This area of learning is often a primary focus of attention in conservation work. Conceptual learning focuses on defining the problem that needs to be addressed and determining what those on-the-ground objectives should be. This type of learning is often overlooked because people may make assumptions about what needs to be accomplished. In collaborative conservation, however, conceptual learning is critical in that partners must agree on what they are trying to accomplish before they can accomplish it. Social learning involves improving relationships and dialogue among collaborators (or potential collaborators). In this study, one of the hallmarks of successful collaborative SWAP implementation efforts was the energy devoted to social learning.

Collaborative conservation efforts will need to emphasize different types of learning. The ways that partnerships are structured can facilitate the types of learning that are most important. Some efforts demand that considerable energy be directed to conceptual learning – or developing agreement about what needs to be accomplished. Such efforts will include those in which interests are diverse and conflicting and those in which on-the-ground conservation objectives are more difficult to achieve. In these contexts, partnerships may need to expend more effort on recruiting a diverse array of partners and building balanced interactions between them.

Many conservation efforts, however, are focused on trying to achieve on-the-ground objectives that have already been established; these efforts emphasize technical learning to a greater degree. These efforts may not require, and indeed may even be inhibited by, the promotion of balanced interactions among stakeholders. In these cases, what may be required is that various actors become engaged according to what they are able to contribute to the process.

## Future Directions

In this project, we developed a working model of collaborative SWAP implementation based on intensive study of a handful of successful efforts. This model was “grounded” in that we developed it by studying the cases themselves rather than formulating our model based on pre-existing theory. We believe there are several ways to build on the value of this research.

- The model effectively establishes a set of hypotheses about the characteristics of successful collaborative SWAP implementation efforts. These hypotheses could be tested and refined by studying a new set of intensive cases (cases which were not used to inform the development of the model itself) and evaluating how well the model explains their level of success.
- The model could serve as the basis for developing standardized indicators of: (1) the outcomes of successful collaborative SWAP implementation efforts; and (2) the factors which influence their success. These indicators could then be used to inform a large scale standardized survey of collaborative SWAP implementation efforts that could evaluate and quantify indicators of success and factors that influence success.
- Through this study we formulated reasonable hypotheses about differences between collaborative efforts that are focused on different types of outcomes – such as efforts focusing on developing agreement on conservation priorities or approaches, those focusing on resources mobilization, and those focusing on on-the-ground conservation benefits. Now that these hypotheses have been formulated, the different factors influencing these cases could be further explored by studying cases specifically chosen because of the types of outcomes they are attempting to achieve.
- Although we were able to draw conclusions about the differences between successful and unsuccessful cases, our data on unsuccessful cases was limited. To further refine our conclusions, it would be worthwhile to study a set of cases specifically chosen because they have had limited success to date; the factors that cause “failure” may not simply be the inverse of those that lead to success.
- Finally, our results suggest a number of practical steps to encourage collaborative SWAP implementation. Consequently, they could be used to inform interventions to promote collaborative SWAP implementation. Research could contribute to the evaluation of the effects of such interventions.

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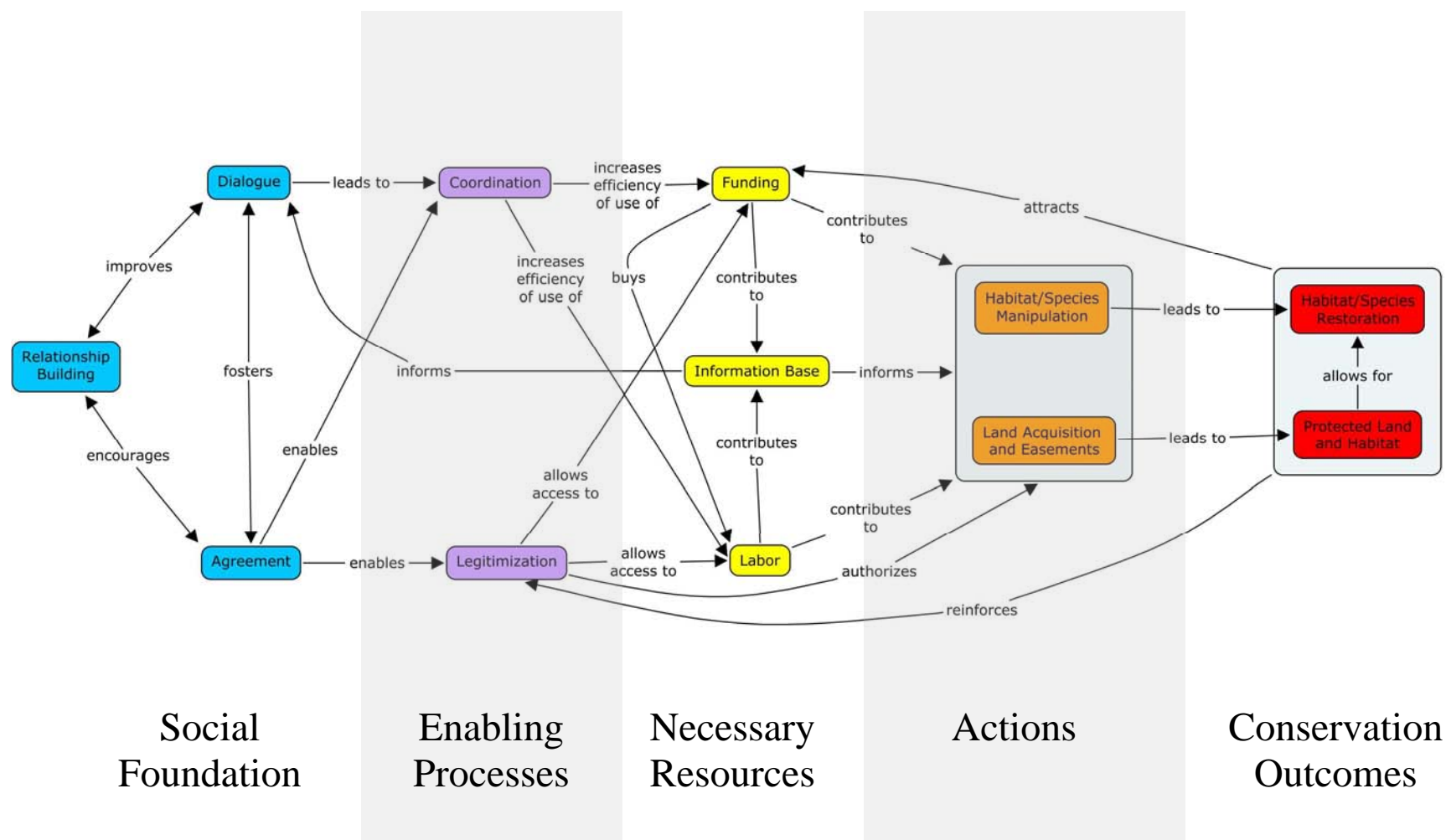
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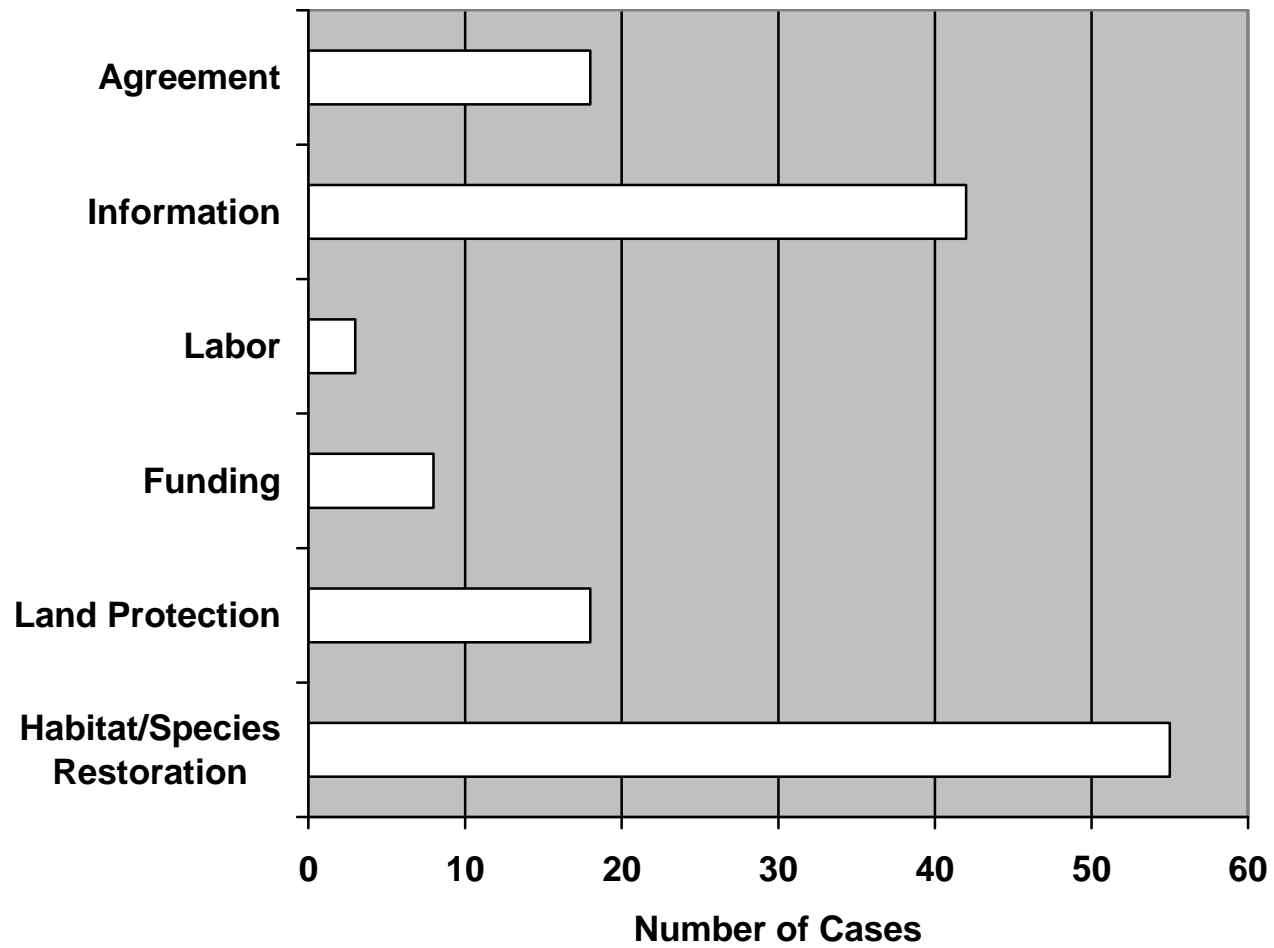
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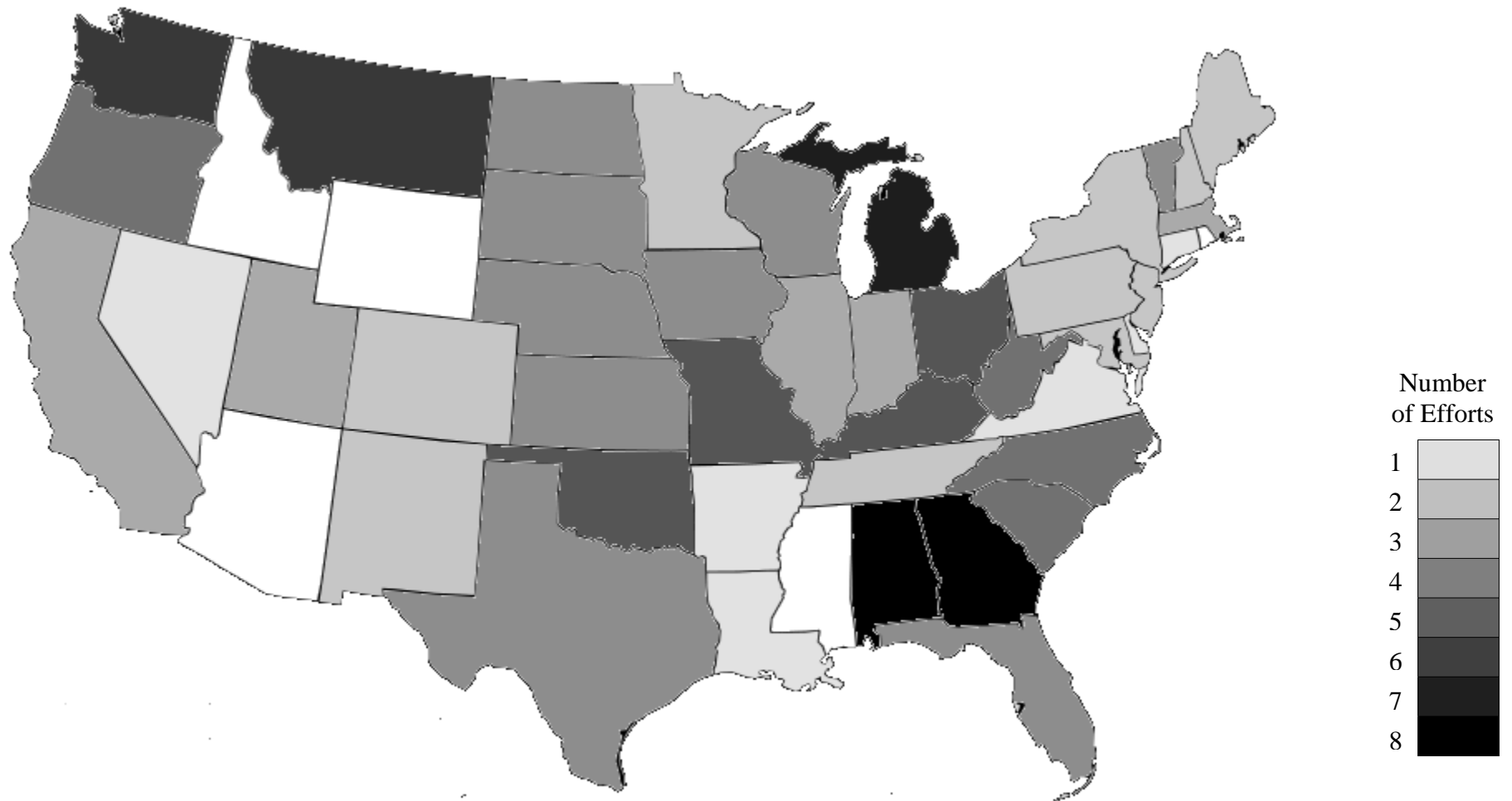
**Figure 1.** Model of collaborative SWAP implementation process.



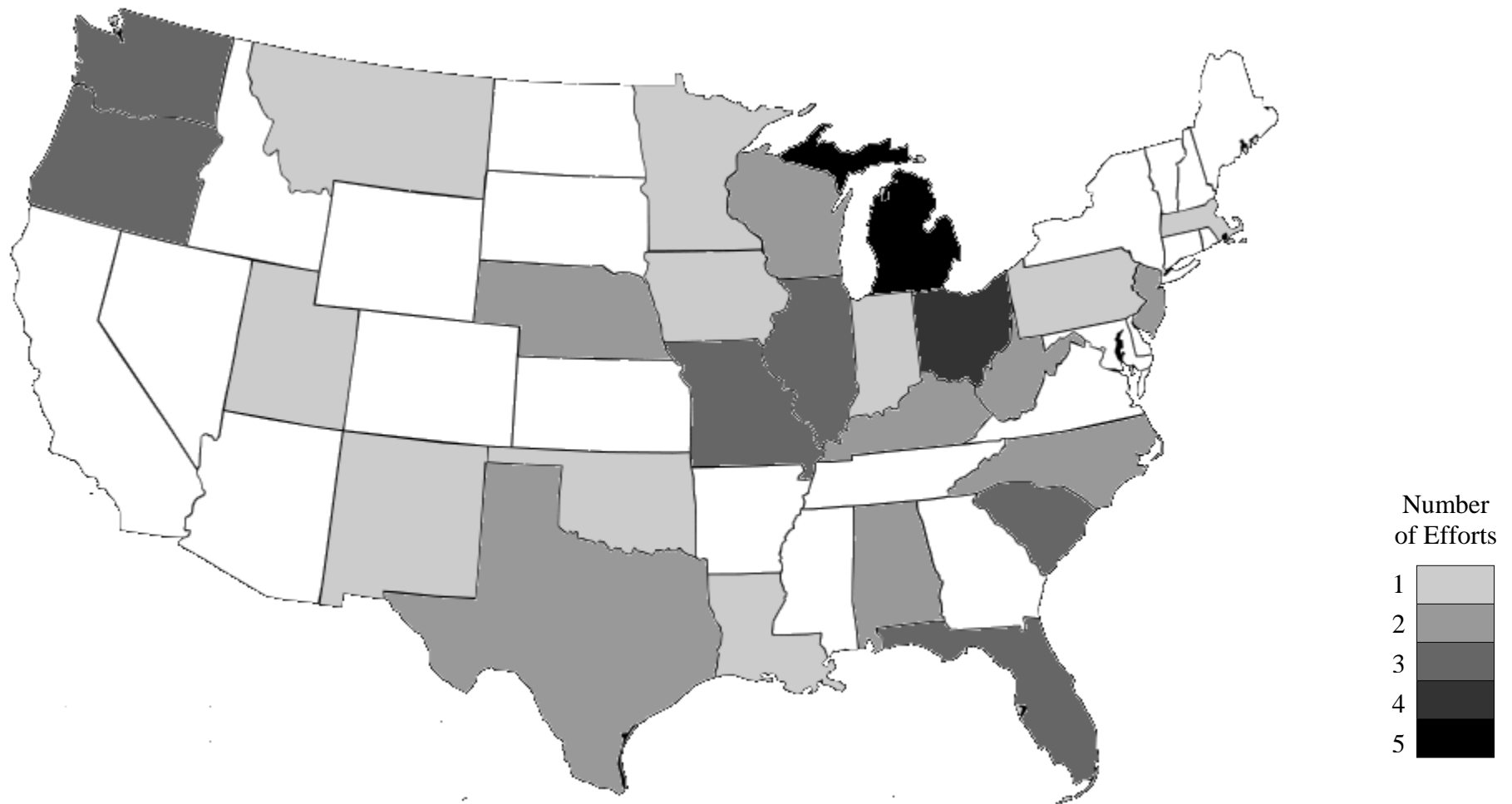
**Figure 2.** Classification of SWAP implementation efforts by intended outcomes.



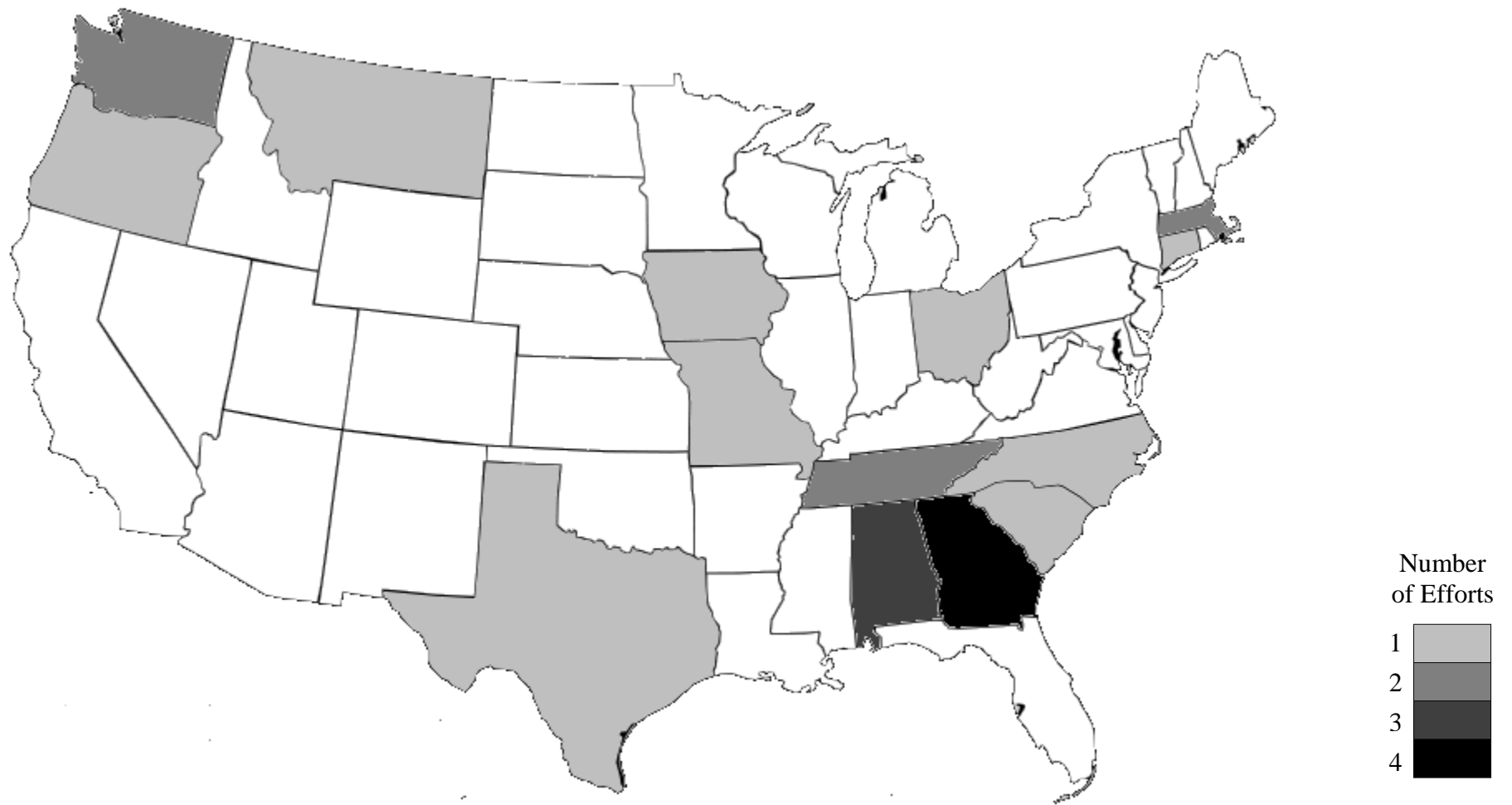
**Figure 3.** Geographic distribution of all SWAP implementation efforts documented.



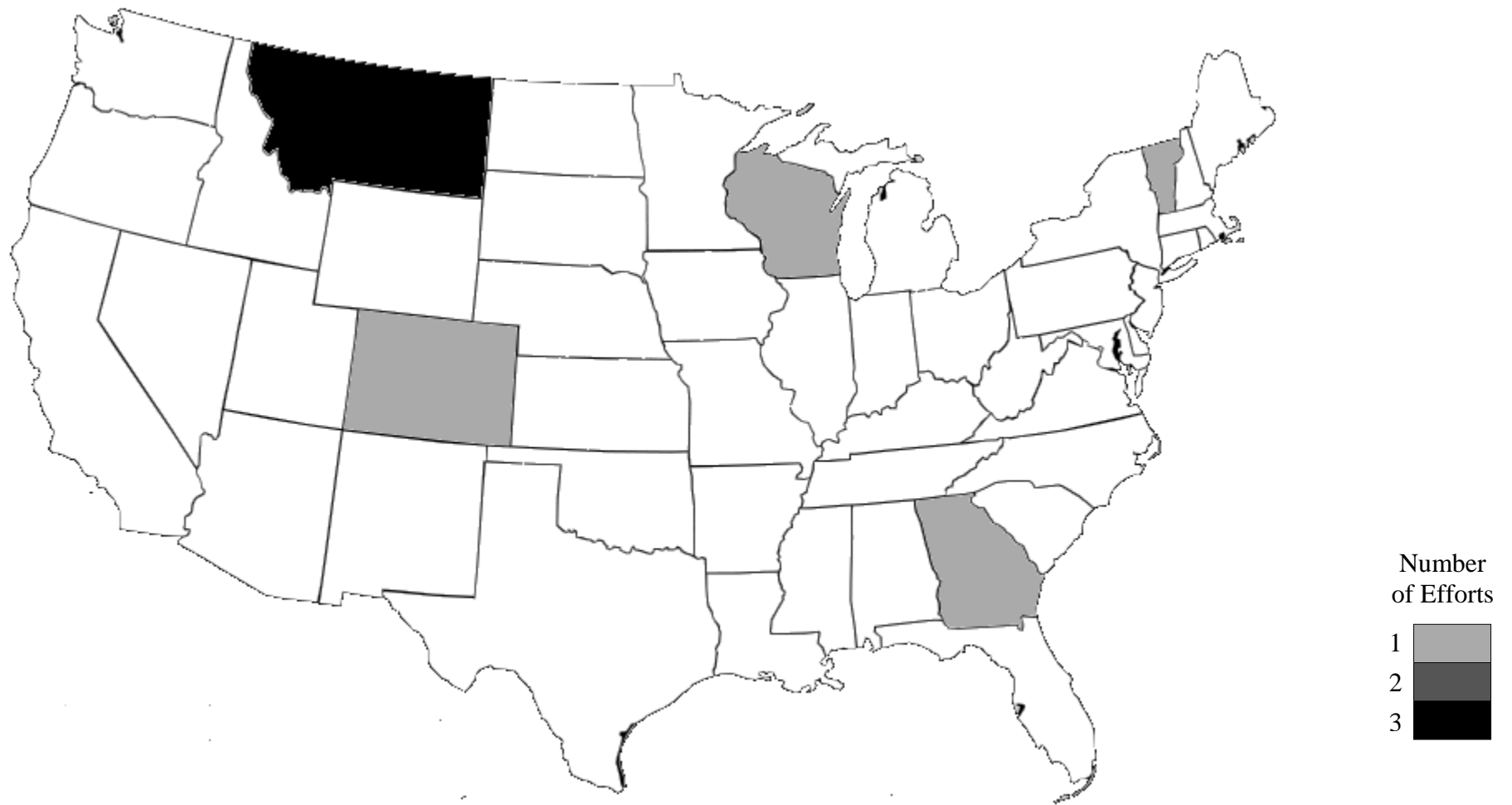
**Figure 4.** Geographic distribution of SWAP implementation efforts documented focused on habitat/species restoration.



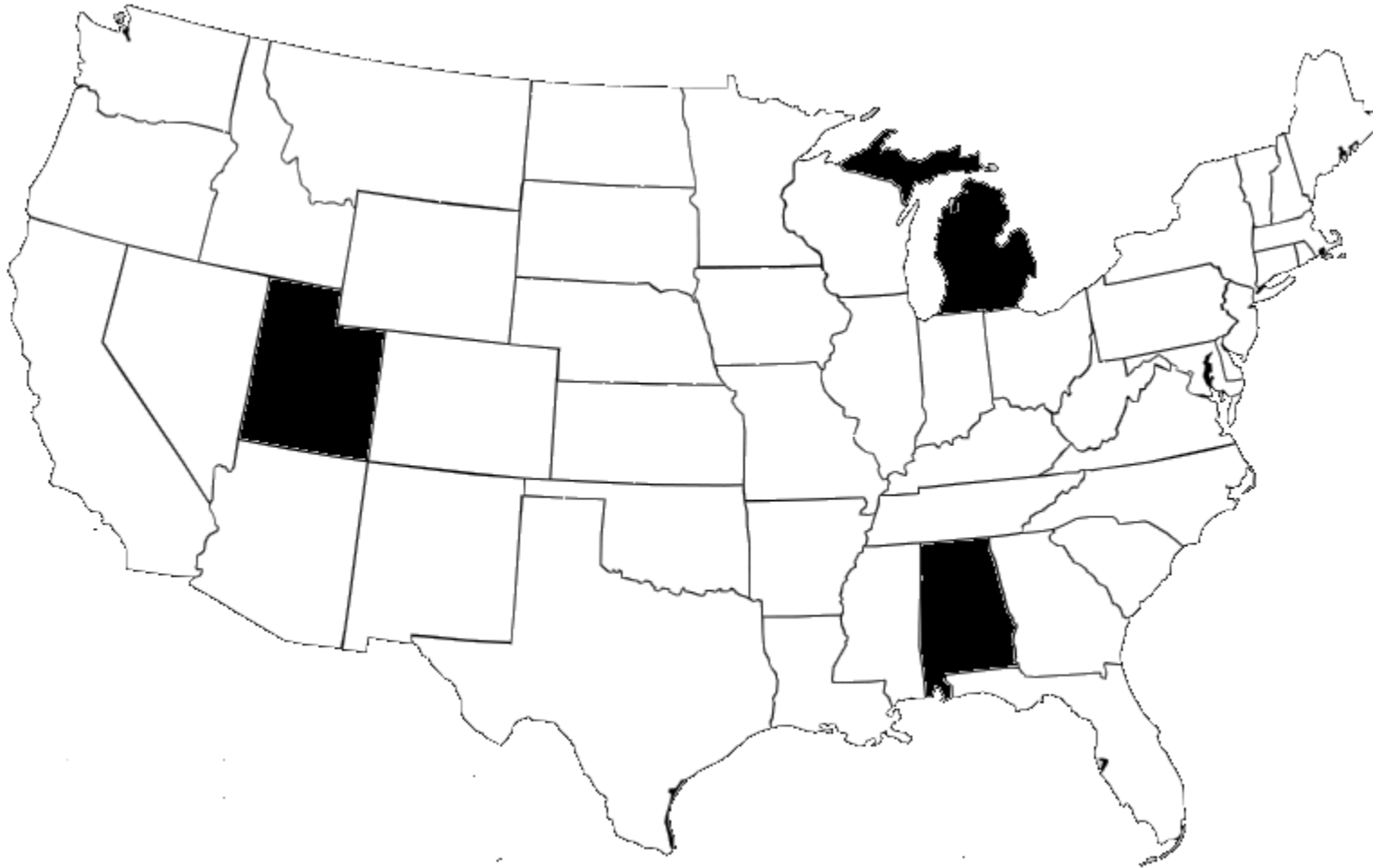
**Figure 5.** Geographic distribution of SWAP implementation efforts documented focused on land protection.



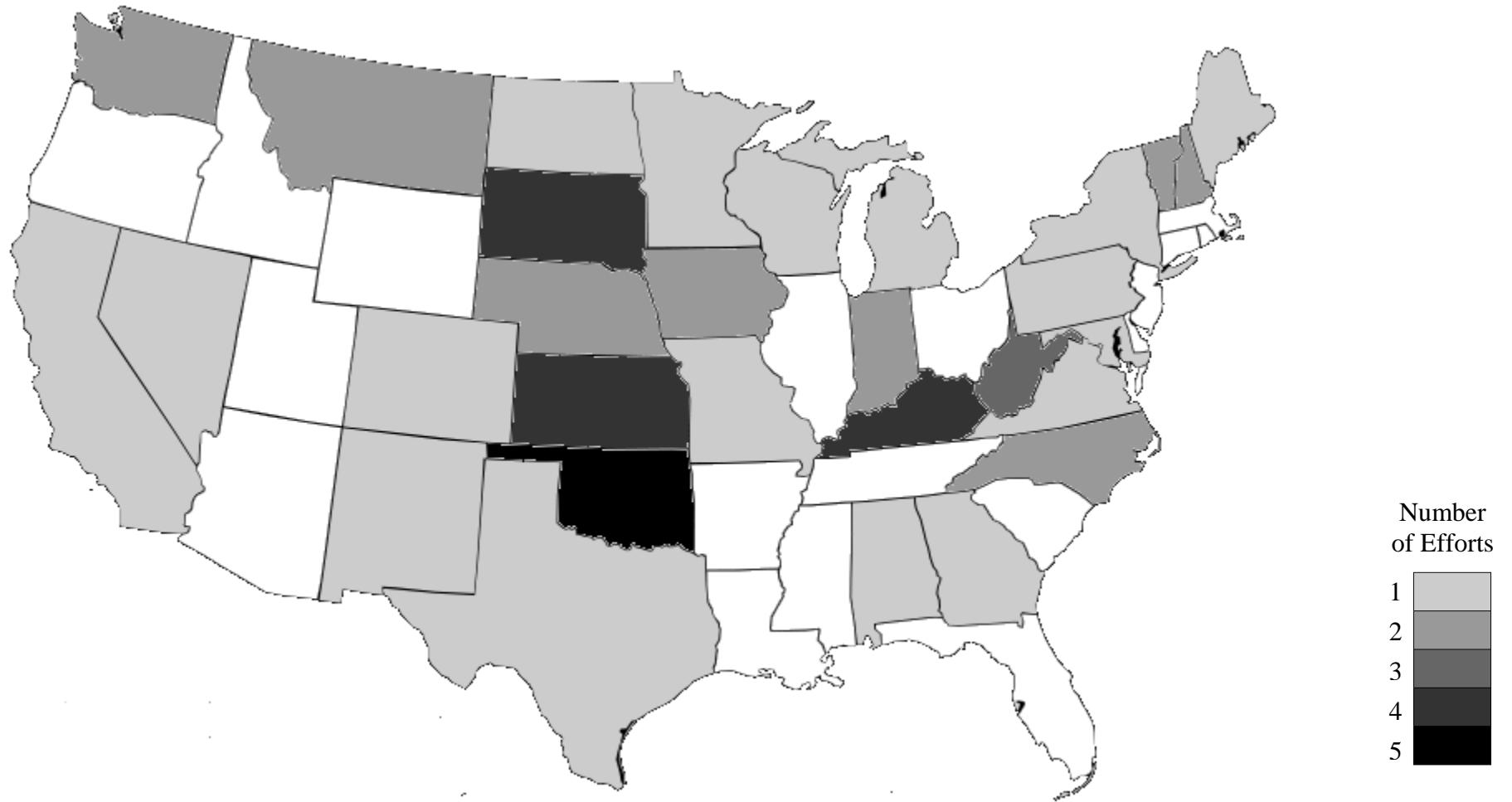
**Figure 6.** Geographic distribution of SWAP implementation efforts documented focused on funding development.



**Figure 7.** Geographic distribution of SWAP implementation efforts documented focused on labor development.

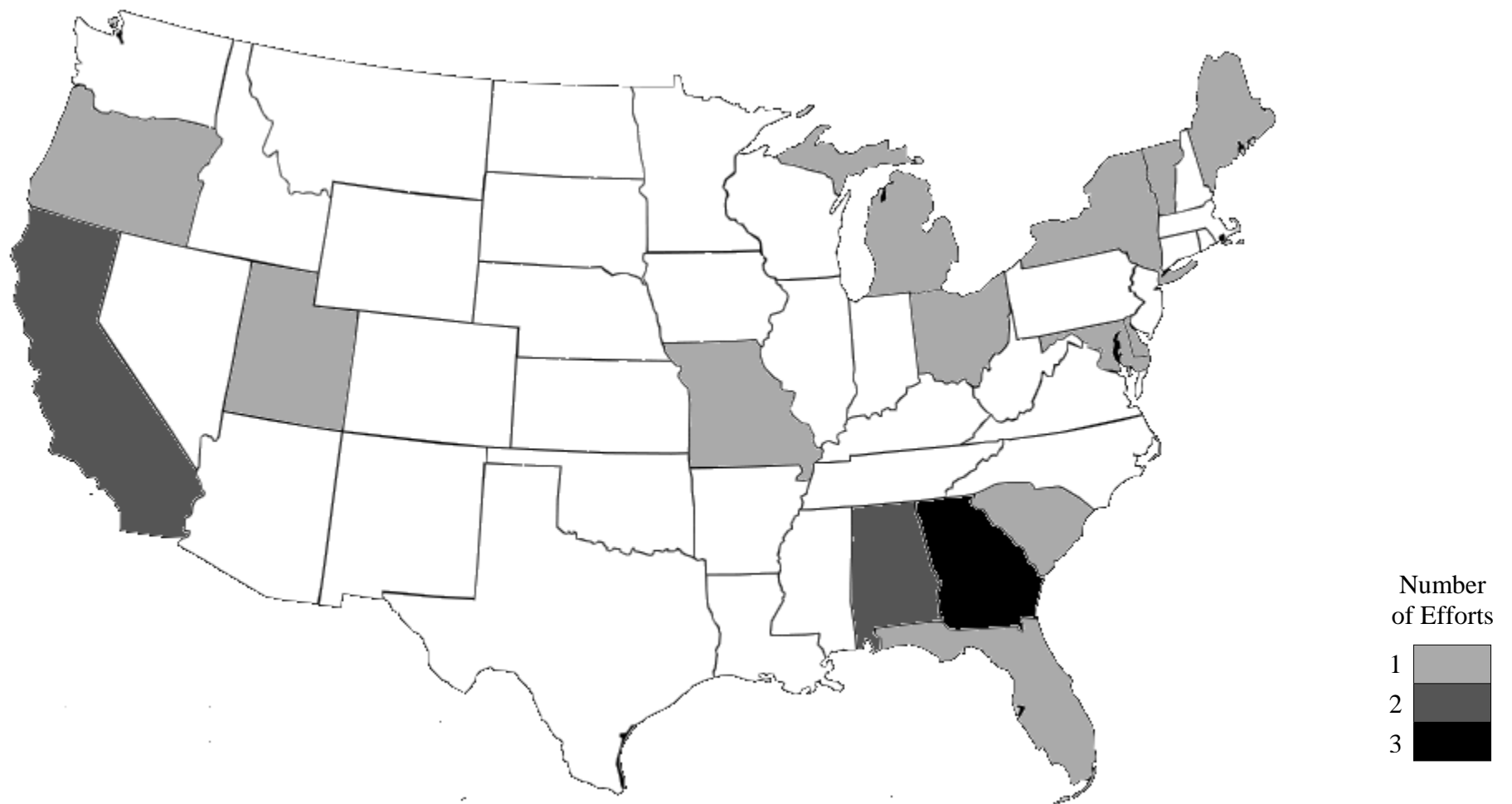


**Figure 8.** Geographic distribution of SWAP implementation efforts documented focused on information.

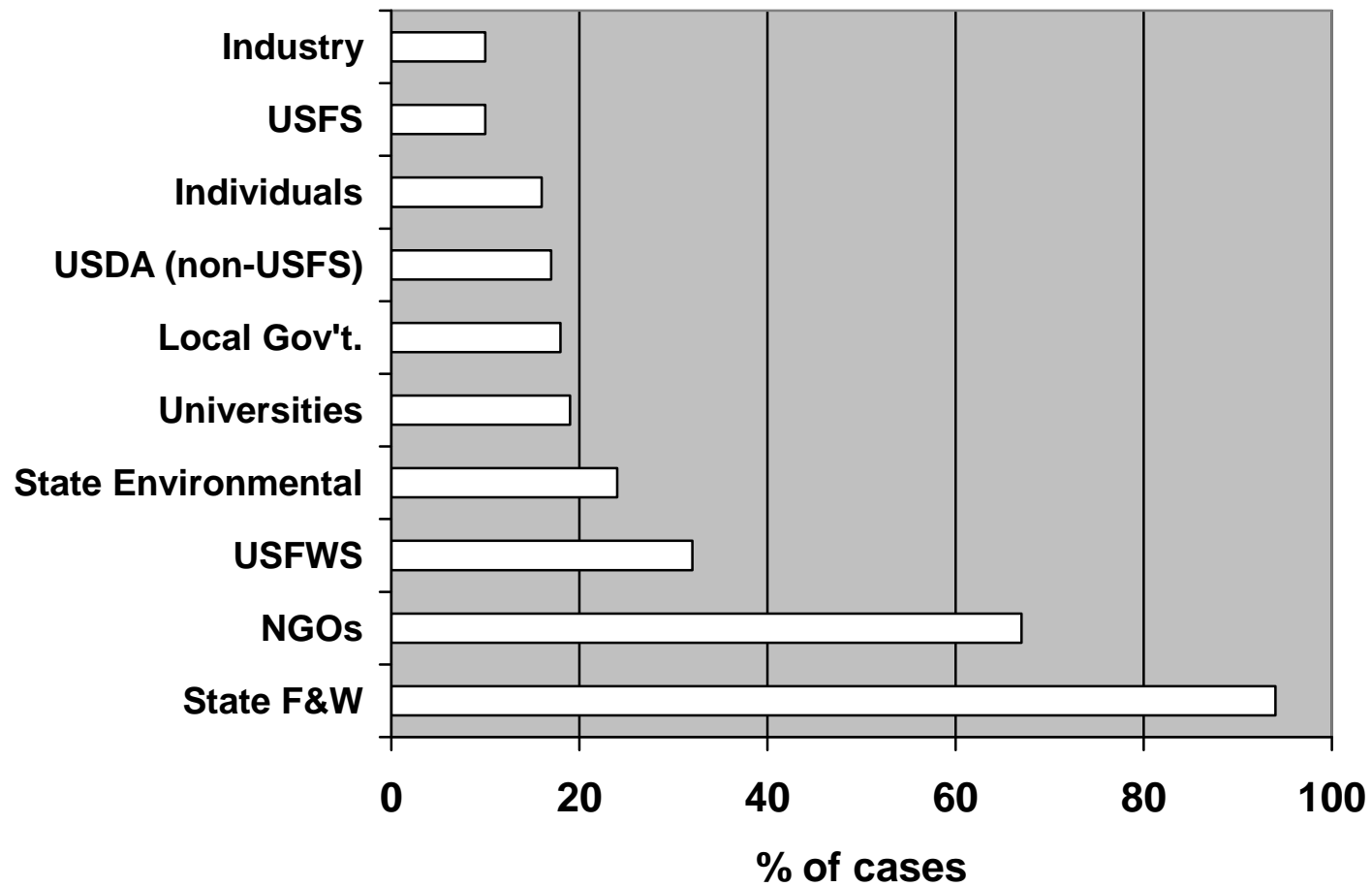




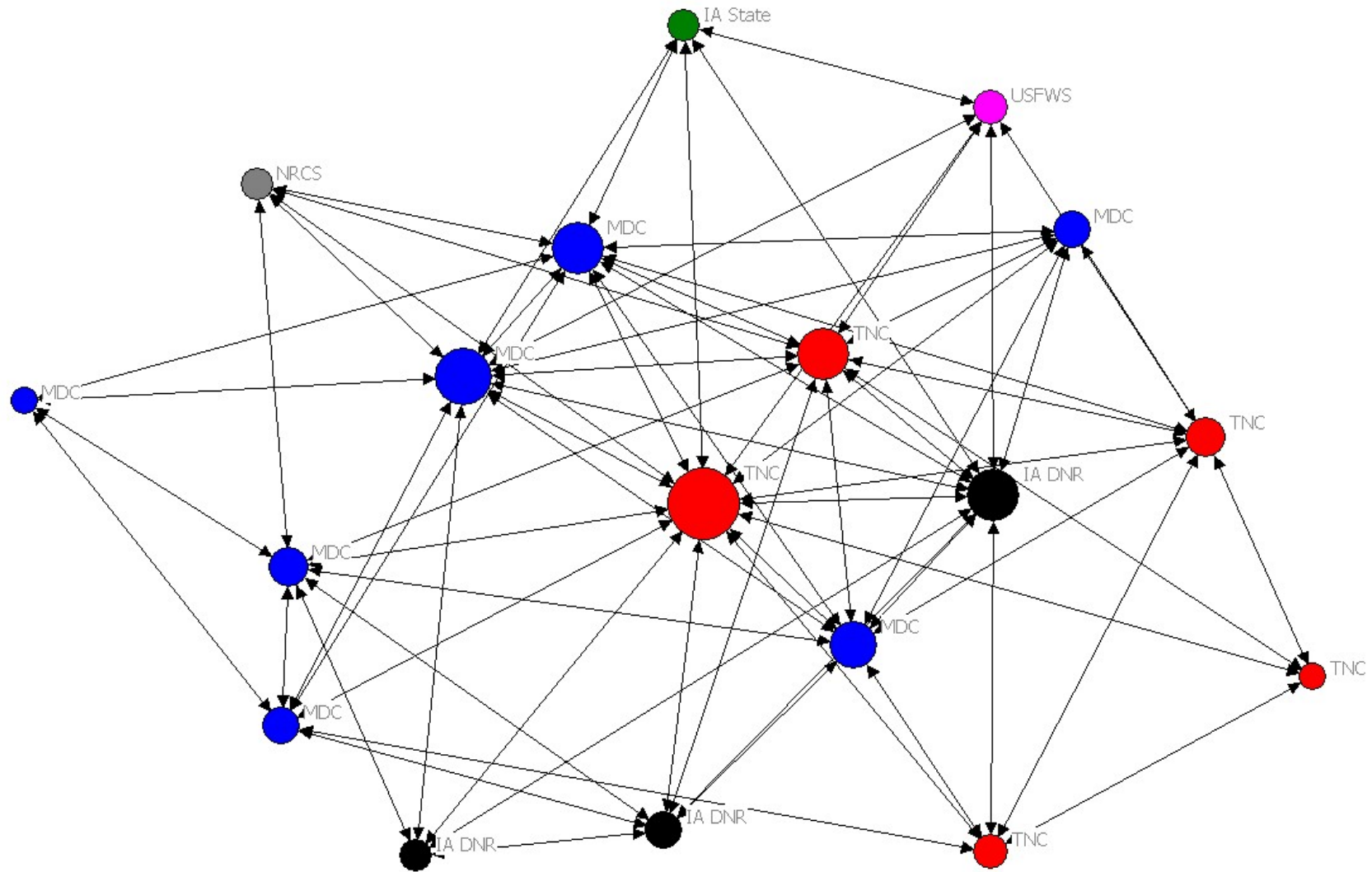
**Figure 9.** Geographic distribution of SWAP implementation efforts documented focused on developing agreement on needs or approaches..



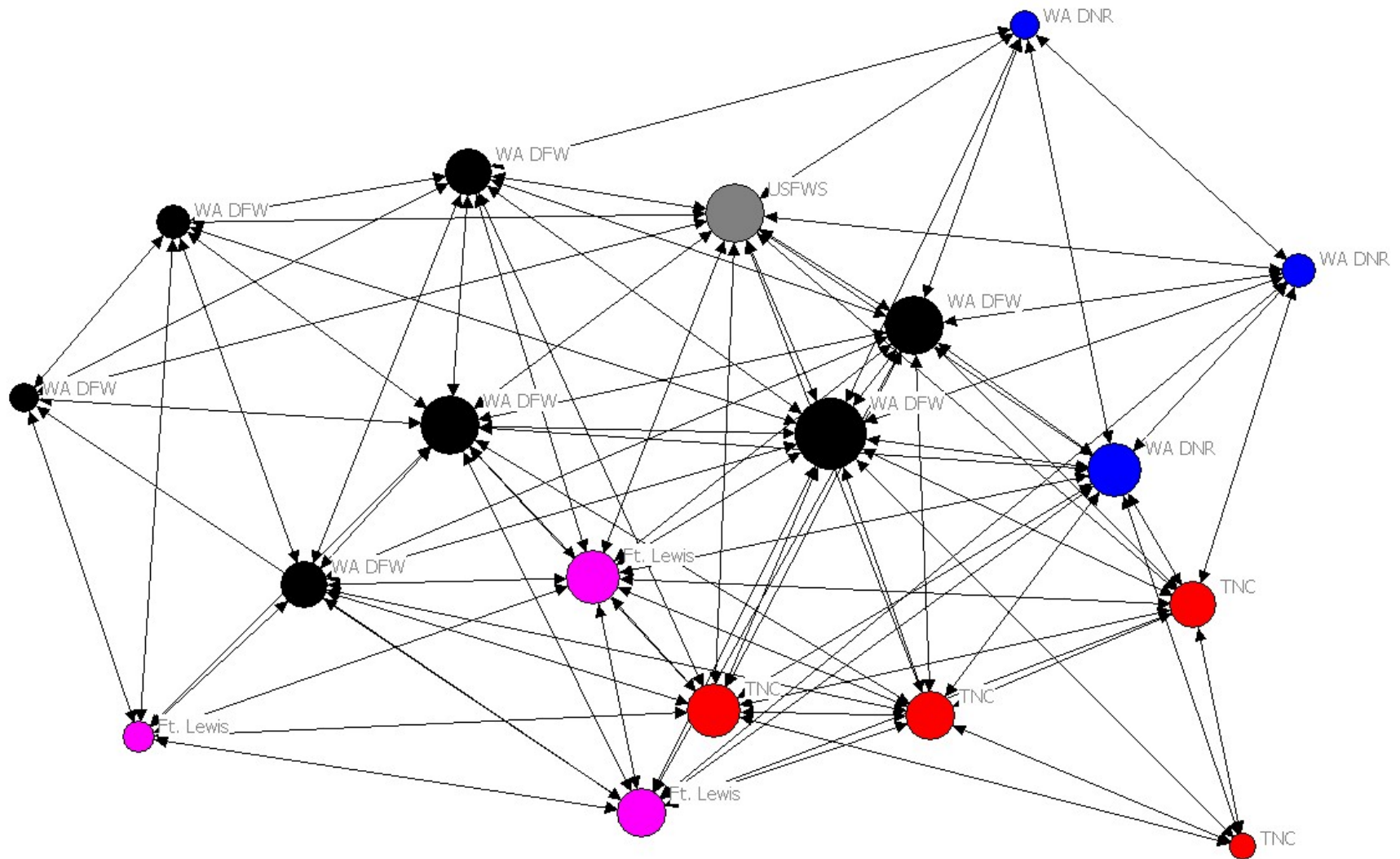
**Figure 10.** Frequency of participation of different types of organizations in SWAP implementation efforts.



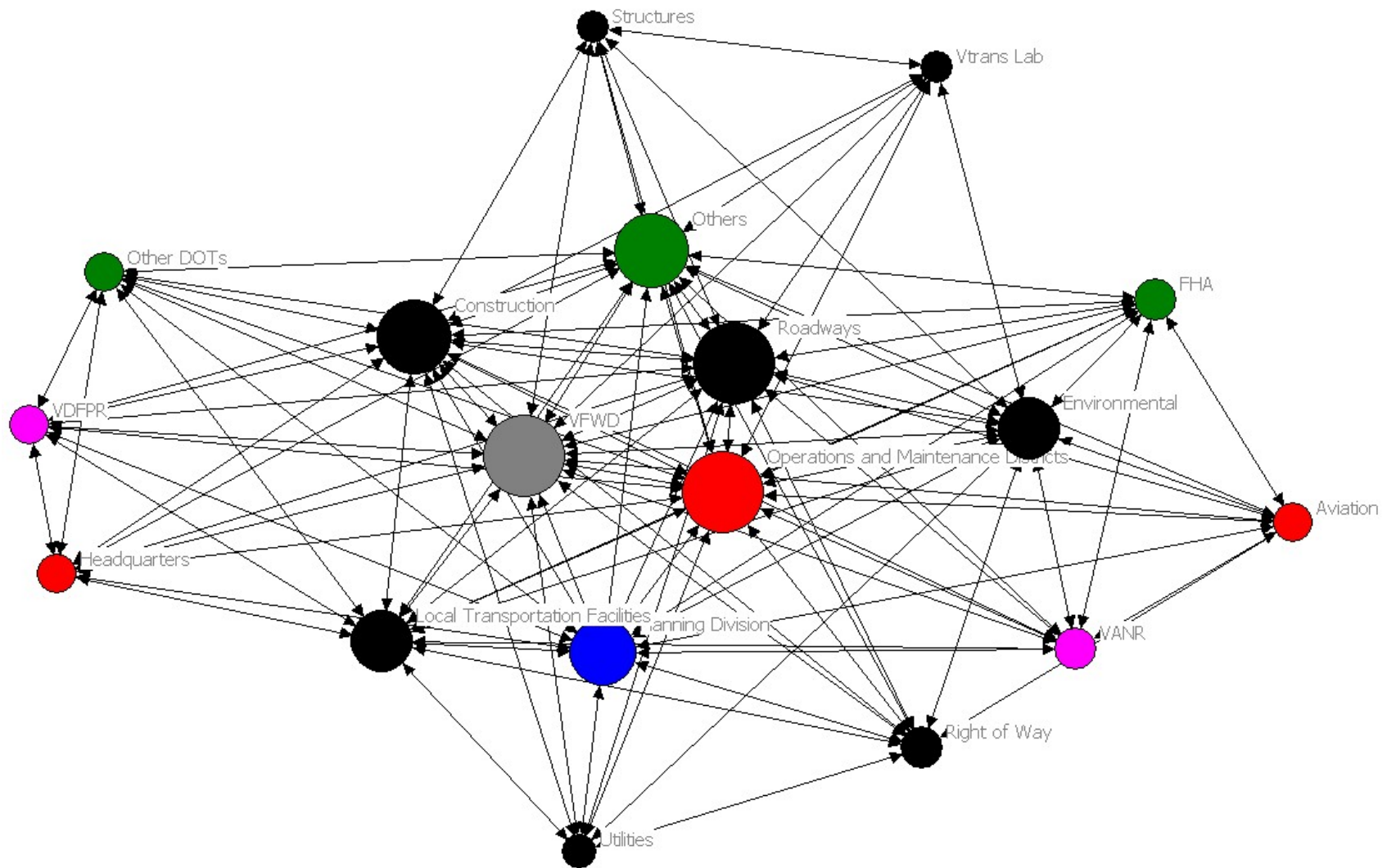
**Figure 11.** Social network map of actors involved in the Grand River Grasslands prairie restoration efforts.



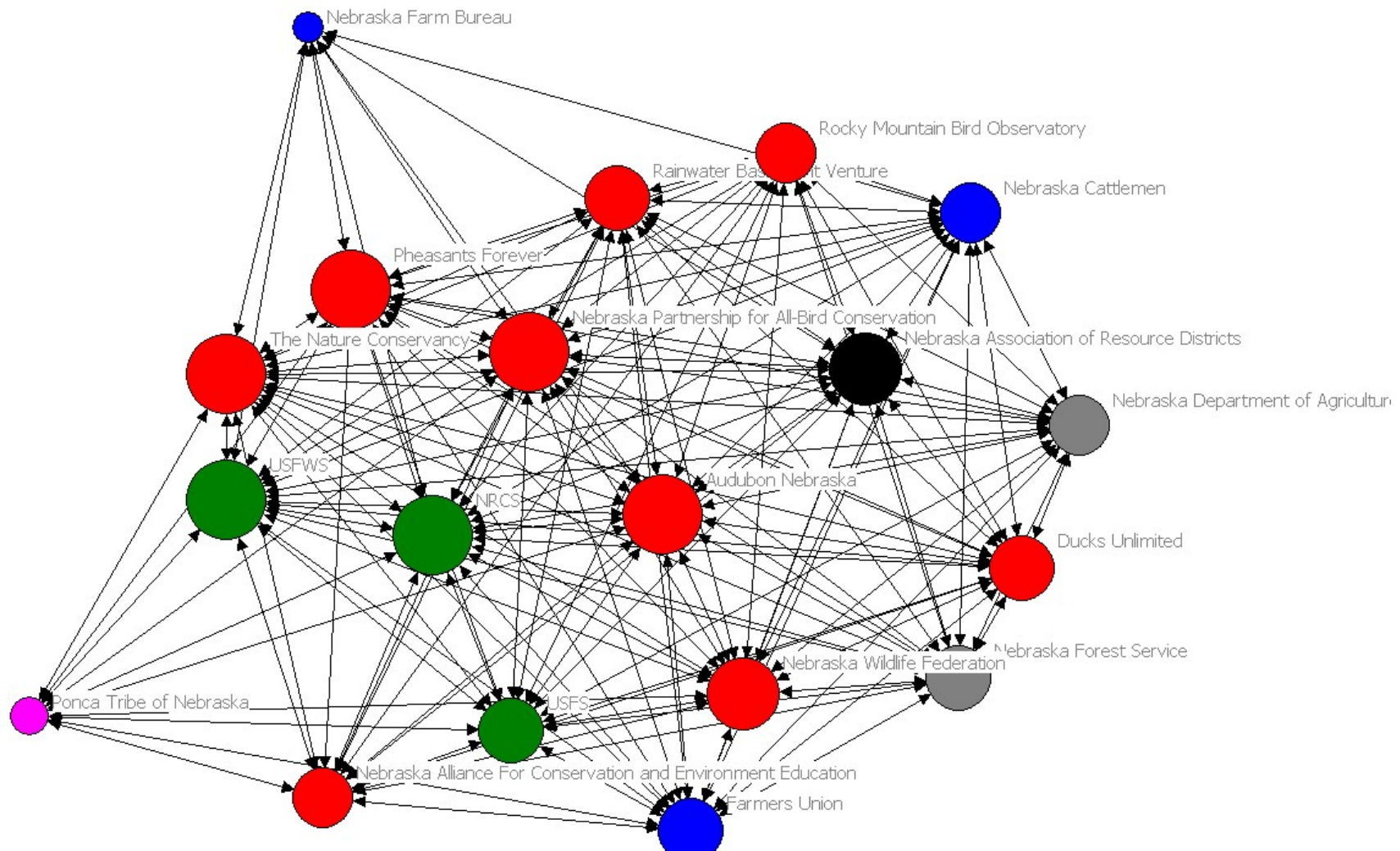
**Figure 12.** Social network map of actors involved in the South Puget Sound prairie restoration efforts.



**Figure 13.** Social network map of linkages created by the Habitats and Highways training program in Vermont.

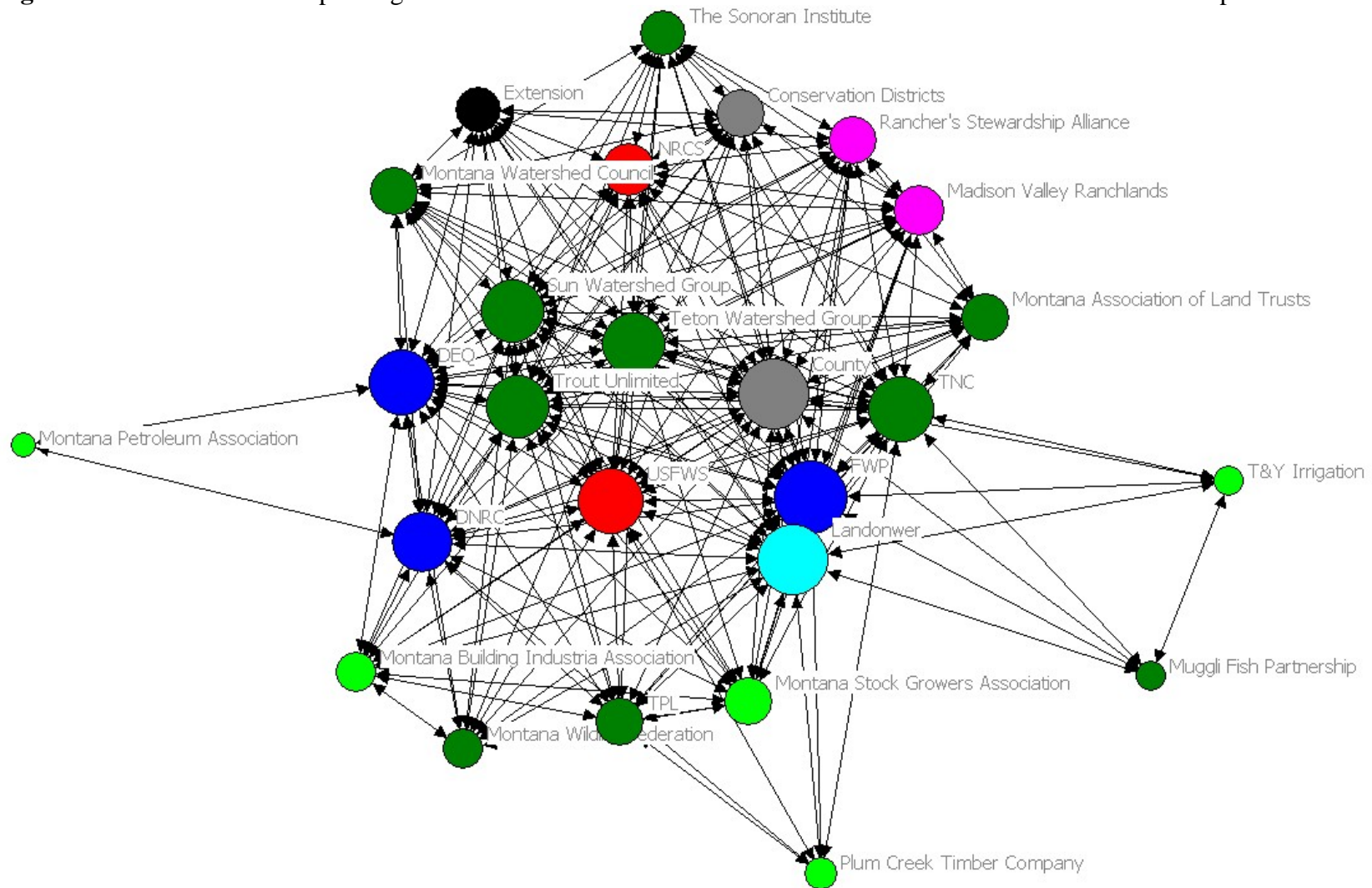


**Figure 14.** Social network map of linkages between organizations created by the Nebraska Game and Parks Commission during the Nebraska Legacy Project.





**Figure 15.** Social network map of organizations involved in the Montana Conservation and Restoration Partnership.



## **Appendix A**

### **Brief Descriptions of Collaborative SWAP Implementation Efforts**

#### **Land Protection**

##### **Cumberland Plateau Land Deal**

Tennessee's SWAP had identified the Northern Cumberland Plateau as a key habitat area in need of protection. When several large tracts of land became available in this area, the state of Tennessee, The Nature Conservancy, and two timber companies worked to secure a combination of fee title, conservation easements, and timber rights in this area that would ensure its protection. The resulting deal protected nearly 128,000 acres in the largest land protection deal in the area since the creation of the Great Smoky Mountains National Park. The success of this effort depended on the committed support of the Governor's office, which helped ensure that the state legislature designated \$82 million in funds for this purchase. The Nature Conservancy committed \$13 million to this project, which they expect to have reimbursed eventually by the U.S. Forest Service Forest Legacy Program. Lyme Timber Company and Conservation Forestry LLC spent \$40 million to purchase 66,000 acres, 42,000 acres of which became protected under conservation easements.

**Partners:** Tennessee Governor's Office, Tennessee Wildlife Resources Agency, Tennessee Department of Environment and Conservation, The Nature Conservancy – Tennessee Chapter, Lyme Timber Company, Conservation Forestry LLC, U.S. Forest Service Forest Legacy Program.

##### **South Carolina Coastal Plain Land Purchases**

The South Carolina Department of Natural Resources has worked with The Nature Conservancy and other nongovernmental organizations to acquire two key parcels in the coastal plain of South Carolina. Both tracts border rivers and are considered important areas for wildlife. Funding for the purchases came from a variety of sources, including the U.S. Forest Service Forest Legacy Program and South Carolina's SWG program. Although South Carolina's SWG contribution was relatively small, the properties will be protected in perpetuity by using these federal funds, resulting in long-lasting benefits.

**Partners:** South Carolina Department of Natural Resources, The Nature Conservancy, U.S. Forest Service Forest Legacy Program, other nongovernmental organizations.

##### **Palding Forest Land Purchase**

The state of Georgia has relatively little public land and relatively little land protected. Therefore, land protection is a particularly high priority under Georgia's SWAP. The Palding Forest had been leased by the Georgia Division of Wildlife Resources for wildlife management for many years. The forest sits at the edge of a metropolitan area, however, and came under risk of development. The county, the state of Georgia, the U.S. Fish and Wildlife Service, and The Conservation Fund all contributed funds to secure the land through a purchase by the state. The



\$15 million county contribution required passage of a local bond act for which The Nature Conservancy and the Georgia Wildlife Federation conducted an advocacy campaign. The specifics of the land deal were negotiated by the Division of Wildlife Resources, the Georgia Forestry Commission, and the U.S. Forest Service Forest Legacy Program. The Nature Conservancy acquired a portion of the land temporarily until the deal could be finalized. The Association of County Governments in Georgia played a critical role in facilitating the conversations necessary for the deal to be negotiated.

**Partners:** Georgia Division of Wildlife Resources, Georgia Forestry Commission, U.S. Fish and Wildlife Service, U.S. Forest Service Forest Legacy Program, county government, The Conservation Fund, The Nature Conservancy, Georgia Wildlife Federation, Association of County Governments in Georgia

### **Silver Lake Land Purchase**

The state of Georgia has relatively little public land and relatively little land protected. Therefore, land protection is a particularly high priority under Georgia's SWAP. The Georgia Division of Wildlife Resources helped to orchestrate the purchase of the Silver Lake tract in southwest Georgia. The purchase has completed in stages using a combination of federal, state, county, and private foundation funds. The willingness of the county to contribute funds to the project is particularly noteworthy given the small county population.

**Partners:** Georgia Division of Wildlife Resources, Georgia Forestry Commission, U.S. Fish and Wildlife Service, U.S. Forest Service Forest Legacy Program, county government.

### **Berrings Tract Land Purchase**

Military lands are important to wildlife conservation in Georgia. These lands often contain critical habitats and rare species and in some cases are effectively "protected" because of the presence of unexploded ordinances. A variety of land conservation efforts have focused on military lands. These conservation efforts also benefit the military by providing them with buffers between military activities and other areas. In one example, the Georgia Division of Wildlife Resources collaborated with the U.S. Marine Corps in the purchase of the 4,000 acre Berrings Tract. The Marine Corps contributed cash to the purchase. Federal grants and state funds were also used in the purchase of the property, in which the state of Georgia became the owner. The Nature Conservancy purchased and held the property temporarily to give the state government time to complete the sale.

**Partners:** U.S. Department of Defense, Georgia Division of Wildlife Resources, Georgia Forestry Commission, U.S. Fish and Wildlife Service, U.S. Forest Service Forest Legacy Program, The Nature Conservancy.

### **Connecticut Valley Grassland Conservation**

The states of Connecticut and Massachusetts collaborated on acquisition of 446 acres of grassland in the Connecticut Valley to support bird conservation. The parcels acquired (196

acres in Connecticut and 250 acres in Massachusetts) contained important habitat along the migration routes of upland sandpipers and other grassland birds. The Conservation Fund initially bought and held the properties until the respective states were able to complete the land deals.

**Partners:** Massachusetts Division of Fisheries and Wildlife, Connecticut Wildlife Division, The Conservation Fund.

### **Land Acquisition in Iowa**

The Iowa Department of Natural Resources is working with the Iowa Natural Heritage Foundation, Pheasants Forever, Ducks Unlimited, The Nature Conservancy, and other nongovernmental organizations to acquire (whether in fee or through easements) land in three key habitat conservation areas in Iowa: the bluffslands of northeast Iowa along the Mississippi River, the Loess Hills of western Iowa, and the glacial lakes in the northern part of the state. These areas three areas were identified as priority conservation areas in Iowa's SWAP and are also important priorities for the nongovernmental organizations involved with this work. A large portion of the funding for this work originated with a grant from the Doris Duke Charitable Foundation, which is being administered by the Iowa Natural Heritage Foundation. These funds are being matched by funds from a variety of other sources.

**Partners:** Iowa Department of Natural Resources, Iowa Natural Heritage Foundation, Pheasants Forever, Ducks Unlimited, The Nature Conservancy.

### **Perdido River Tract Acquisition**

Only 10% of Alabama is in public ownership, but numerous species of greatest conservation need depend on large, protected tracts of land. Consequently, land acquisition has been an important focus. The 18,000 acre Perdido River Tract was acquired as part of a series of land deals involving The Nature Conservancy and International Paper throughout the southeastern U.S. The Nature Conservancy bought and held the property until the Alabama Department of Conservation and Natural Resources was able to purchase it using funds from its Forever Wild Land Trust.

**Partners:** Alabama Department of Conservation and Natural Resources, The Nature Conservancy, International Paper.

### **Alabama's Forever Wild Land Trust**

Alabama's Forever Wild Land Trust has been in place for fifteen years and spends \$10-15 million per year on land acquisition using funds from offshore oil and gas leases. Some of these funds have been used to benefit species of greatest conservation need, many of which depend on large, protected properties. The Lands Division of the Alabama Department of Conservation and Natural Resources manages some of these lands while others are managed as WMA's by the

Wildlife and Freshwater Fisheries Division. State Wildlife Grants funding is used to implement habitat improvements to benefit greatest conservation need species.

**Partners:** Alabama Department of Conservation and Natural Resources (State Lands Division), Alabama Department of Conservation and Natural Resources (Wildlife and Freshwater Fisheries Division).

### **Shrub Steppe Conservation in the Cascades Columbia Basin**

The Washington Department of Fish and Wildlife and other key stakeholders have been trying to acquire fee title, long term easements, and development rights to protect the ecological function of east slope forest in the Cascade Mountains and shrub steppe habitat in the Columbia Basin. Some large-scale land swaps between the Washington Department of Fish and Wildlife and the Washington Department of Natural Resources, trading timber lands for shrub steppe, have been contributed to this effort. A large number of coordinated transactions involving multiple partners have been involved.

**Partners:** Washington Department of Fish and Wildlife, Washington Department of Natural Resources, Cascade Land Trust, The Nature Conservancy, U.S. Forest Service, U.S. Fish and Wildlife Service, timber industry.

### **Willamette Valley Timberland Conservation**

The Oregon Department of Fish and Wildlife is working with several agencies and organizations to conserve 2,000 acres of private timberlands in the Willamette Valley. These lands, which are part of a priority area under the state's comprehensive wildlife conservation strategy, contain some particularly valuable habitats and species. The Bonneville Power Administration is using mitigation funds from other projects to purchase this property and place conservation easements on it. The Trust for Public Land is holding the property temporarily until the agreement can be finalized. Oregon State University will use this property as a study site.

**Partners:** Oregon Department of Fish and Wildlife, Bonneville Power Administration, Trust for Public Land, Oregon State University.

### **Lyndhurst Foundation Land Conservation Fund**

The Doris Duke Charitable Foundation sought to concentrate its initial efforts to promote the implementation of SWAPs in the four southeastern states of Tennessee, Georgia, Alabama, and North Carolina. It further provided \$7.5 million to The Nature Conservancy and The Conservation Fund to jumpstart this regional effort.

In response, the Lyndhurst Foundation approved a grant of \$4 million dollars to be divided equally among the chosen states to fund acquisitions and easements on key parcels in SWAP priority areas. In Tennessee and Alabama, Lyndhurst appointed The Nature Conservancy to assist in the selection of projects, which ultimately leveraged the protection of approximately 6,000 acres in two concentrated areas of the Southern Cumberland Plateau. In Northwest Georgia, Lyndhurst partnered with the Open Space Institute and the Benwood Foundation in the

creation of a \$2.25 million dedicated fund, which aided in the protection of 1,800 acres adjacent to Crockford-Pigeon Mountain Wildlife Management Area and facilitated the placement of conservation easements on an additional 4,000 acres. In North Carolina, Lyndhurst again partnered with OSI, along with the Southern Appalachian Highlands Conservancy and the Land Trust for the Little Tennessee, to secure key tracts in the Roan Highlands and Little Tennessee watershed. In addition to financial support for acquisition and easements, Lyndhurst made available to its partners a GIS consultant, who contributed invaluable analysis and mapping services.

**Partners:** Doris Duke Charitable Foundation, Lyndhurst Foundation, Benwood Foundation, Open Space Institute, The Nature Conservancy (TN, AL, GA Chapters), The Conservation Fund, state fish and wildlife management agencies, Southern Appalachian Highlands Conservancy, Land Trust for the Little Tennessee, Lookout Mountain Conservancy, Walker County, Georgia Land Trust, Land Trust for Tennessee, University of the South, Tennessee Heritage Conservation Trust Fund

### **Massachusetts Land Acquisition**

Although a great deal of wildlife habitat has been protected in Massachusetts, a great deal is still threatened by development. The Massachusetts Division of Fisheries and Wildlife (MDFW) continues to work to acquire land through fee acquisition or through the purchase of conservation easements throughout the state. Partnerships with various non-governmental conservation organizations are sometimes used to perform an important service to the MDFW by holding these properties (temporarily) until all of the necessary state paperwork can be completed and the transaction can be finalized to the MDFW.

**Partners:** Massachusetts Division of Fisheries and Wildlife, land trusts.

### **Rocky Mountain Front Land Protection**

The Nature Conservancy and The Conservation Fund have partnered with Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service to protect land along the Rocky Mountain Front in Montana. Private contributions of \$20-30 million are being matched by contributions from Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service to secure easements on key areas.

**Partners:** The Nature Conservancy, The Conservation Fund, Montana Fish, Wildlife and Parks, U.S. Fish and Wildlife Service

### **Texas Blackland Prairie Restoration**

The Native Prairie Association is working with the Texas Parks and Wildlife Department to identify and protect blackland prairie habitat. To date, this work has included a project involving the mapping of blackland prairie and the purchase of conservation easements on three

relic tracts of prairie. This project is also contributing to the development of relationships with private landowners who will be critical to the success of future prairie restoration efforts.

**Partners:** Native Prairie Association, Texas Parks and Wildlife Department, private landowners, Western Navarro County Bobwhite Initiative, Mid Trinity Basin Conservation Foundation

### **LaBarque Creek Watershed Conservation Opportunity Area**

River and streams are the second highest priority habitat in Missouri's Comprehensive Wildlife Strategy. The streams of the LaBarque Creek Watershed Conservation Opportunity Area in the greater St. Louis area supports 42 species of fish, one of the highest levels of aquatic diversity in the region. A variety of partner organizations are working collaboratively to protect stream health through land acquisition, easements, and land use guidance. The U.S. Forest Service Forest Legacy Program helped fund conservation easements. The Missouri Department of Conservation has acquired key properties with the help of conservation partners. Conservation efforts have included intensive outreach to local landowners.

**Partners:** The Nature Conservancy – Missouri Chapter, Ozark Regional Land Trust, Trust for Public Land, The Open Space Council, Missouri Conservation Heritage Foundation, East-West Gateway Council of Governments, U.S. Army Corps of Engineers - St. Louis District, Jefferson County, LaBarque Creek Watershed Partners, Natural Resources Conservation Service, U.S. Environmental Protection Agency, Missouri Department of Conservation, U.S. Forest Service Forest Legacy Program.

### **Washington Forestry and Fish Program**

Through the Forestry and Fish Program, the Washington Department of Fish and Wildlife has been working with a variety of partners to protect riparian habitat and benefit fish species throughout the state. A series of agreements with the timber industry, other government agencies, nongovernmental organizations, and tribes has led to the protection of many acres of habitat.

**Partners:** Washington Department of Fish and Wildlife, tribal government, other government agencies, timber industry, nongovernmental organizations.

### **Riparian Corridor Protection in Ohio**

A number of riparian corridor protection efforts are underway in Ohio in which the Ohio Department of Natural Resources (ODNR) Division of Wildlife works in several different collaborative partnerships, each composed of both governmental and nongovernmental organizations. Most of these partnerships seek protection through a series of acquisitions and easements. Much of the funding for this work has come from the Clean Ohio Fund, with the ODNR Division of Wildlife providing much of the match. Restoration efforts currently

underway focus on the Kokosing River, Pymatuning Creek, Grand River, Clear Creek, and Big and Little Darby Creeks.

**Partners:** Ohio Department of Natural Resources Division of Wildlife and Division of Natural Areas and Preserves, The Nature Conservancy, Knox, Fairfield, and Franklin County Metroparks, Ashtabula County Soil and Water Conservation District, and other governmental and nongovernmental organizations.

## **Habitat/Species Restoration**

### **Puget Sound Prairie**

The south Puget Sound region in Washington State originally had large expanses of prairie, but they have been reduced to about 1% of their original extent. Several rare plant and animal species, golden paintbrush, Mazama pocket gopher, streaked horned lark, and two species of butterfly (Taylor's checkerspot and Mardon skipper), depend on this prairie habitat. Partly to avoid the need to list these species under the U.S. Endangered Species Act, a variety of agencies, organizations, and municipalities have working together to establish priorities, acquire key parcels of land, and restore prairie vegetation. Funding has been provided by the U.S. Fish and Wildlife Service, The Nature Conservancy, the U.S. Department of Defense (Fort Lewis), the Washington Department of Fish and Wildlife, and the Washington Department of Natural Resources. The Nature Conservancy and the Puget Land Trust have helped to broker land acquisition deals in support of this effort.

**Partners:** U.S. Fish and Wildlife Service, U.S. Department of Defense, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, The Nature Conservancy, Xerces Society, land trusts, Port of Olympia, Port of Tacoma, several municipalities.

### **Grand River Grasslands Prairie Restoration**

The Missouri Department of Conservation, the Iowa Department of Natural Resources, and The Nature Conservancy are working together to restore tallgrass prairie in northern Missouri and southern Iowa. Although the vast majority of this area is currently grassland, it is dominated by nonnative species. The landscape contains sufficient prairie remnants, however, to make it suitable for restoration. The area contains a number of species of conservation concern including northern prairie skinks, regal fritillary butterflies, prairie mound ants, and greater prairie-chickens, as well as a variety of key grassland bird species. Work in both states is being coordinated, where land acquisition efforts, restoration of native plant species, and research to improve land management practices are underway. Private landowners in both states have proved important partners because they seek to maintain grazing as part of their traditional way of life rather than succumb to growing economic pressure to convert land to corn production.

**Partners:** The Nature Conservancy – Missouri Chapter, The Nature Conservancy – Iowa Chapter, Grasslands Coalition, Missouri Conservation Heritage Foundation, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, Missouri Department of Conservation, Iowa Department of Natural Resources, private landowners.

### **Texas Landowners Associations**

With over 95% of the state in private ownership, landowner involvement in conservation is critical in Texas. Successful wildlife and habitat conservation depend on decisions that take place on private lands. Many private landowners have joined together to form Wildlife Management Associations, which work to implement conservation activities on a landscape scale. Over 6,000 landowners are members of nearly 150 of these associations covering approximately 2 million acres of land. Texas Parks and Wildlife has funded efforts by several of these landowner associations to restore prairie habitat to benefit bobwhite quail, lesser prairie chickens and other priority species in the Texas Wildlife Action Plan.

**Partners:** Texas Parks and Wildlife Department, private landowner associations.

### **Raritan Piedmont Wildlife Habitat Partnership**

The Raritan Piedmont Wildlife Habitat Partnership is a collaborative effort of nearly 40 governmental and nongovernmental organizations working to manage and restore grasslands and maintain habitat connectivity in Somerset County, New Jersey. This grassroots effort was a response initiated by New Jersey Audubon Society and several other groups to growing development pressure leading to the alarming loss of grasslands. Much of the management efforts are funded by the Division of Fish and Wildlife's Landowner Incentive Program which provides funding to landowners to manage habitat on their properties for at risk species. Restoration efforts of this partnership have been funded by the Partners for Fish and Wildlife Program, the USDA Natural Resources Conservation Service, and the Conserve Wildlife Foundation of New Jersey.

**Partners:** USDA Natural Resources Conservation Service, U.S. Fish and Wildlife Service, New Jersey Division of Fish and Wildlife, Conserve Wildlife Foundation of New Jersey, New Jersey Audubon Society, and other governmental and nongovernmental programs.

### **Mystic Plains Conservation Opportunity Area**

The Mystic Plains Conservation Opportunity Area is one of two significant grassland landscapes in northern Missouri. All of the land in this area is privately owned. The Missouri Prairie Foundation initiated an effort to conserve and restore grasslands in this area. They initiated the effort by identifying partner organizations and landowners with whom to work. Subsequently, they purchased a 50-acre prairie remnant. They also worked with private lands staff and the USDA Natural Resources Conservation Service to develop an ambitious Wildlife Habitat Improvement Program (U.S. Department of Agriculture farm bill program, WHIP) proposal. As a result, the Missouri Prairie Foundation was awarded the largest WHIP contract in Missouri history, funding grassland management and restoration on private land.

**Partners:** Missouri Prairie Foundation, private landowners, USDA Natural Resources Conservation Service, Missouri Department of Conservation.

### **Minnesota Bluff Prairie Restoration**

The Minnesota Department of Natural Resources (DNR) is working collaboratively with private landowners and nongovernmental organizations in southeastern Minnesota on the restoration and protection of bluff prairies. Much of this habitat has become overgrown with cedar making it less suitable for timber rattlesnakes and other wildlife species. DNR has been very successful working with landowners on valuable bluff prairie restoration work and has directed a portion of Minnesota's federal Landowner Incentive Program funds to support this work. Larger restoration projects on public land, partly funded by State Wildlife Grant funds, are also being carried out in cooperation with the National Wild Turkey Federation and Prairie Smoke (a chapter of The Prairie Enthusiasts). Restoration work has been complemented by the purchase of a 366 acre easement that was a collaborative venture with the Minnesota Land Trust.

**Partners:** Minnesota Department of Natural Resources, private landowners, U.S. Fish and Wildlife Service, National Wild Turkey Federation, Prairie Smoke, Minnesota Land Trust.

### **Kentucky Grassland Habitat Restoration**

The Kentucky Department of Fish and Wildlife Resources and Quail Unlimited initiated an effort to improve grassland habitat and increase the number of ephemeral pools on private lands. The project was consistent with the habitat priorities of The Nature Conservancy, which joined the effort as a partner. Funding was provided both through State Wildlife Grants and The Nature Conservancy, and the project has been successful at meeting the acreage targets established.

**Partners:** Kentucky Department of Fish and Wildlife Resources, Quail Unlimited, The Nature Conservancy.

### **Buffalo River-Richland Creek Prairie Restoration**

The Ozark Highlands region in Arkansas contains more species of greatest conservation need than any other part of the state, and grasslands are a key habitat type in this region. Because of its suitability for pasturelands, much of the grassland in this area has become badly degraded from overgrazing. The National Park Service is leading an effort to restore grasslands in this area in partnership with the Arkansas Game and Fish Commission, the Rocky Mountain Elk Foundation, the National Wild Turkey Federation, and Ozark Ecological Restoration. The National Park Service is carrying out much of the actual restoration work. The Arkansas Game and Fish Commission has purchased several key parcels of land that are adjacent to or surrounded by National Park Service. State Wildlife Grant funding is being used to partially support the restoration work.

**Partners:** National Park Service, Arkansas Game and Fish Commission, Rocky Mountain Elk Foundation, National Wild Turkey Federation, Ozark Ecological Restoration



### **Nickel Preserve in Oklahoma**

The J.T. Nickel Family Nature and Wildlife Preserve in Oklahoma is a 14,000 acre parcel in the Ozarks that is being restored to oak woodlands by a collaborative partnership involving the preserve, The Nature Conservancy, and the Oklahoma Department of Wildlife Conservation (ODWC). ODWC had put little emphasis on Ozark woodland restoration until they came to realize its importance for birds during the development of their CWCS. Important species in this region include prairie warblers, Bachman's sparrows, and blue-winged warblers. Restoration work is being accomplished through thinning and prescribed burning, much of which is being carried out by The Nature Conservancy. The Nature Conservancy and Rogers State University are monitoring the effects of the work on vegetation, birds, and bats.

**Partners:** The Nature Conservancy, Oklahoma Department of Wildlife Conservation, Rogers State University.

### **Davis Ranch in North Dakota**

The North Dakota Game and Fish Department is using State Wildlife Grant funds to support the restoration of a 6,000 acre parcel of native prairie owned by The Nature Conservancy. Although The Nature Conservancy owned the parcel, they did not have funds available to improve its management. The restoration work includes the installation of fencing to allow for rotational grazing. The Nature Conservancy is conducting the monitoring work for the project.

**Partners:** North Dakota Game and Fish Department, The Nature Conservancy.

### **Brown Ranch in North Dakota**

The North Dakota Game and Fish Department is using State Wildlife Grant funds to support the restoration of a 2,000-3,000 acre parcel of native prairie owned by The Nature Conservancy. The tract is set within other tracts of native prairie owned by the U.S. Forest Service and private landowners. Although The Nature Conservancy owned the parcel, they did not have funds available to improve its management. The restoration work includes prescribed burns, spraying noxious weeds, and removal of undesirable weeds. The surrounding landowners are also conducting restoration work on their parcels.

**Partners:** North Dakota Game and Fish Department, The Nature Conservancy, U.S. Fish and Wildlife Service, private landowners.

### **North Dakota Native Prairie Establishment**

The U.S. Fish and Wildlife Service and the North Dakota Game and Fish Department are working together to restore native prairie. Cropland is being taken out of production, and the partners are exploring the best mixes of native species for prairie restoration.

**Partners:** U.S. Fish and Wildlife Service, North Dakota Game and Fish Department, Natural Resources Trust, Delta Waterfowl.

### **Grand Prairie Grassland Conservation**

Pheasants Forever has been working with other nongovernmental organizations and the Illinois Department of Natural Resources to restore grassland habitat in the Grand Prairie Grassland region of Illinois. Their aim is to establish a core area of native grassland habitat linked by spokes of habitat to other grassland areas.

**Partners:** Pheasants Forever, Illinois Department of Natural Resources, other nongovernmental organizations.

### **South Carolina Grassland Bird Restoration**

The South Carolina Department of Natural Resources has been working with the South Carolina Forestry Commission on grassland restoration at three state wildlife management areas to benefit bobwhite quail and other grassland birds. Quail Unlimited, a nongovernmental organization, and BASF, a for-profit chemical company, both have provided materials, equipment, and funding to support this work. South Carolina DNR has supplied most of the necessary labor. Both vegetation and bird populations have responded to this effort.

**Partners:** South Carolina Department of Natural Resources, South Carolina Forestry Commission, Quail Unlimited, BASF.

### **Alabama Longleaf Pine Restoration**

Longleaf pines provide a unique, once widespread but now uncommon, habitat type in Alabama, characterized by mature trees, open canopy, minimal midstory vegetation, and herbaceous ground cover. This habitat type benefits several wildlife species including red-cockaded woodpeckers, Bachman's sparrows, and gopher tortoises. Fire suppression and the development of pine plantations have contributed to the decline of longleaf pines. The Alabama Department of Conservation and Natural Resources is helping to fund management activities to restore longleaf pines, such as prescribed burns, on several properties owned by The Nature Conservancy.

**Partners:** Alabama Department of Conservation and Natural Resources, The Nature Conservancy.

### **Louisiana Longleaf Pine Restoration**

The National Wild Turkey Federation is working with the Louisiana Department of Wildlife and Fisheries, the Natural Resources Conservation Service, The Nature Conservancy, and private landowners to increase the establishment of longleaf pine on 500 acres of working timber lands. Longleaf pines were identified as a priority habitat type, important for a variety of species, in Louisiana's SWAP. An additional benefit of longleaf pines is that they proved to be more resistant to the damage from Hurricane Katrina than nonnative pines. The National Wild Turkey Federation is overseeing the work, and The Nature Conservancy has helped to establish program

priorities. Much of the funding for the work comes from the USDA Natural Resources Conservation Services' Environmental Quality Improvement Program and Wildlife Habitat Improvement Program, although private landowners are contributing to the work as well.

**Partners:** National Wild Turkey Federation, Louisiana Department of Wildlife and Fisheries, USDA Natural Resources Conservation Service, The Nature Conservancy, private landowners.

### **Kentucky Bottomland Hardwoods Restoration**

The Nature Conservancy is partnering with the Kentucky Department of Fish and Wildlife Resources to restore bottomland hardwoods and ephemeral pools in western Kentucky. The Nature Conservancy initiated the project and provided funding to match the contribution from State Wildlife Grants. The Kentucky Department of Fish and Wildlife Resources and The Nature Conservancy are helping to support a biologist who is initiating conservation dialogue and working with private landowners in this high priority area.

**Partners:** The Nature Conservancy, Kentucky Department of Fish and Wildlife Resources, private landowners.

### **Upland Ecosystem Restoration Program**

The Upland Ecosystem Restoration Program involves efforts to restore upland ecosystems in Florida. The effort is funded by several Florida state agencies: the Florida Fish and Wildlife Conservation Commission (State Wildlife Grant funds), the Florida Department of Environmental Protection, and the Water Management Districts. Tall Timbers, a private research station that owns a large amount of land in the area, has led the restoration efforts. They hope that the collaboration contributing to the program can serve as a model for other upland ecosystem restoration efforts.

**Partners:** Tall Timbers Research Station, Florida Fish and Wildlife Conservation Commission, Florida Department of Environmental Protection, Florida Division of Forestry, University of Florida, U.S. Forest Service, Volusia County, Florida Water Management Districts.

### **Montana Sage Brush Conservation Initiative**

The sage grouse, an iconic species in Montana, is on the verge of being listed as endangered or threatened under the U.S. Endangered Species Act. Its listing would have a considerable impact on both agriculture and oil and gas development. Montana Fish, Wildlife and Parks and the U.S. Fish and Wildlife Service are working together to restore the sage brush habitat on which this species depends in Montana.

**Partners:** Montana Fish, Wildlife and Parks, U.S. Fish and Wildlife Service.

## **Florida's Spring Basin Working Groups**

Florida contains over 700 springs, 30 of which are classified as level 1 springs (an indication of their size). Springs and Spring Runs also provide important habitat for many species that have highly restricted ranges and provide a warm water refuge for animals such as the Florida Manatee. These springs are habitat priorities in Florida's SWAP, but are threatened by a variety of factors including run off and septic tanks. The Florida Department of Environmental Protection has created a number of collaborative working groups that involve diverse stakeholders in designing and implementing non-regulatory projects to protect springs. The groups meet quarterly and are open to the public. The Florida Fish and Wildlife Conservation Commission has assigned regional wildlife biologists to work with each of the working groups.

**Partners:** Florida Department of Environmental Protection, Florida Fish and Wildlife Conservation Commission, Florida Water Management Districts, local government

## **Skunk River Drainage Wetland Restoration**

The Iowa Department of Natural Resources (DNR) Wildlife Bureau is interested in improving wildlife habitat along key drainages, such as the Skunk River Drainage. As part of this effort they are coordinating activities with the USDA Natural Resources Conservation Service (NRCS) and the Iowa DNR Forestry Bureau to influence land management practices in the area. A key part of this effort is aligning requirements of NRCS' Wetland Reserve Program (WRP) contracts in the area with Iowa's SWAP priorities. WRP contracts provide private landowners with funding and technical assistance to implement particular land management practices on their properties. Growing evidence had shown that, although landowners were abiding by contract requirements, vegetation on many of these contract lands was not suitable for wildlife. By working together, the Iowa DNR Wildlife Bureau and the NRCS can ensure that contracts specify land management practices that will be most beneficial to wildlife. Iowa DNR Forestry Bureau is working to implement compatible management practices on state-owned lands in these areas. This effort has only recently been initiated.

**Partners:** Iowa Department of Natural Resources, USDA Natural Resources Conservation Service, private landowners.

## **Beaver Island Phragmites Project**

The Michigan Department of Natural Resources and the U.S. Fish and Wildlife Service collaborated with public and private landowners on Beaver Island to control Phragmites along the shoreline. The work, which was funded by State Wildlife Grant funds, was intended to increase potential habitat for piping plovers. One hundred different parcels were targeted as part of this work.

**Partners:** Michigan Department of Natural Resources, U.S. Fish and Wildlife Service, public and private landowners.

## **Willamette Valley Land Conservation**

The Oregon Department of Fish and Wildlife is coordinating with the Natural Resources Conservation Service and the U.S. Fish and Wildlife Service to integrate SWAP strategies with federal land conservation programs in the Willamette Valley. A number of areas of rare habitat and species at risk exist in this area of dense human population. The USDA Natural Resources Conservation Service administers several programs that provide landowners with funding and technical assistance to modify land use practices on their lands for environmental benefits. The U.S. Fish and Wildlife Service works with private landowners adjacent to its refuge lands to enhance habitat. ODFW has hired a grasslands biologist to assist with these efforts. To date, key sites for conservation activities have been identified and a tracking system for monitoring projects is in place.

**Partners:** Oregon Department of Fish and Wildlife, USDA Natural Resources Conservation Service, U.S. Fish and Wildlife Service, private landowners.

## **South Carolina Farm Bill Programs**

The South Carolina Department of Natural Resources worked with the USDA Natural Resources Conservation Service to better integrate consideration of wildlife into the implementation of USDA farm bill programs. The primary focus of this effort was on the restoration of northern bobwhite quail in the South Carolina coastal plain. The Department of Natural Resources contributed State Wildlife Grant funds toward hiring 3 wildlife biologists to work in three Natural Resources Conservation Service offices. USDA Natural Resources Conservation Service provided match through office space and vehicle use. This program has been viewed as a great success at both improving the quality of habitat and establishing relationships between the Department of Natural Resources and private landowners.

**Partners:** South Carolina Department of Natural Resources, USDA Natural Resources Conservation Service

## **Federal Landowner Assistance Programs in Alabama**

Both the U.S. Fish and Wildlife Service and the USDA Natural Resources Conservation Service administer programs to influence land use practices on private lands for conservation benefits. The Alabama Department of Conservation and Natural Resources has worked closely with these programs in an effort to attain SWAP priorities. The availability of Landowner Incentive Program funding, which Alabama can use to supplement contracts under these federal programs has given the state greater influence over the emphases of these programs. Through these efforts, they have been able to manage for SWAP objectives on private lands.

**Partners:** Alabama Department of Conservation and Natural Resources, U.S. Fish and Wildlife Service, USDA Natural Resources Conservation Service.

## **Natural Resources Conservation Service Programs in Massachusetts**

The Massachusetts Division of Fisheries and Wildlife and the USDA Natural Resources Conservation Service (NRCS) have been working to coordinate their activities to benefit species of greatest conservation need in Massachusetts. NRCS cost-share programs have the potential to play a critical role in species conservation, but the number of NRCS technical staff is insufficient to adequately consider species conservation in its decisions. Consequently, the Massachusetts Division of Fisheries and Wildlife signed an MOU to provide technical assistance to NRCS for this purpose, while NRCS agrees to allocate \$500,000 of WHIP financial assistance to implement practices which match the goals and objectives of the DFW Biodiversity Initiative and the SWAP.

**Partners:** USDA Natural Resources Conservation Service, Massachusetts Division of Fisheries and Wildlife.

## **New Mexico's Landowner Incentive Program**

In New Mexico, state policy specifies that grants to private landowners through the U.S. Fish and Wildlife Service's Landowner Incentive Program should contribute to SWAP objectives. These grants, which are matched by contributions from private landowners, must help species of greatest conservation need. In New Mexico, the greatest emphasis has been placed on restoration of shortgrass prairie in the eastern part of the state. Most projects involve vegetation management, although some projects involving water management and riparian restoration have also been funded.

**Partners:** New Mexico Department of Game and Fish, U.S. Fish and Wildlife Service, private landowners.

## **Michigan's Landowner Incentive Program**

The Michigan Department of Natural Resources is working with the U.S. Fish and Wildlife Service to help direct Landowner Incentive Program funds from the Fish and Wildlife Service to address SWAP priorities throughout the state. Landowner Incentive Program funds are provided to private landowners, who supply matching contributions, to benefit species at risk. Michigan DNR has supplied four biologists for this effort and identified key species or issues in each subregion of the state.

**Partners:** Michigan Department of Natural Resources, U.S. Fish and Wildlife Service, private landowners.

## **Michigan's Conservation Reserve Program**

The Michigan Department of Natural Resources is working with the USDA Natural Resources Conservation Service (NRCS) and several nongovernmental organizations to direct Conservation Reserve Program funds to contracts with farmers that help to meet SWAP priorities. The Conservation Reserve Program is one of the biggest habitat programs in the state. Michigan

DNR, in consultation with The Nature Conservancy, Pheasants Forever, and the Environmental Defense Fund, provides input to NRCS on key locations and land use practices for CRP contracts.

**Partners:** Michigan Department of Natural Resources, USDA Natural Resources Conservation Service, The Nature Conservancy, Pheasants Forever, Environmental Defense Fund.

### **EQUIP and WHIP Enrollment in Michigan**

The Michigan Department of Natural Resources received a U.S. Department of Agriculture Conservation Innovation Grant to increase enrollment in USDA's Environmental Quality Incentives Program (EQUIP) and Wildlife Habitat Incentives Program (WHIP). Haylands and pasturelands serve both as commodities and as habitat for grassland birds, but currently insufficient incentives exist to manage these lands in a way to benefit grassland birds. Michigan DNR is working with a number of governmental and nongovernmental organization to enroll 7,500 acres in EQUIP and WHIP in 18 counties.

**Partners:** Michigan Department of Natural Resources, U.S. Department of Agriculture, Michigan Department of Agriculture, Michigan State University Extension, Michigan Audubon, Pheasants Forever.

### **Utah Partners for Conservation and Development**

Utah Partners for Conservation and Development is a partnership of nine state and seven federal agencies and organizations that work together to leverage resources and develop solutions for conservation issues. Their primary focus is on "healthy landscapes," and they have adopted four of the top ten habitat priorities from Utah's SWAP: wetlands, riparian areas, shrub steppe, and aspen. They have facilitated numerous habitat restoration projects with a goal of 100,000 acres restored each year.

**Partners:** Utah Association of Conservation Districts, Utah Department of Agriculture and Food, Utah Department of Community and Culture, Utah Department of Environmental Quality, Utah Department of Natural Resources, Utah Energy Office, Utah School and Institutional Trust Lands Administration, Utah State University Extension, Utah Resources Conservation and Development Council, Bureau of Land Management, Bureau of Reclamation, U.S. Fish and Wildlife Service, U.S. Forest Service, Natural Resources Conservation Service, USDA Farm Service Agency, USDA Agricultural Research Service.

### **Nebraska Flagship Initiatives**

To further the implementation of their SWAP, the state of Nebraska created a series of locally based flagship initiatives to further habitat protection and restoration in various ecoregions. Out of 40 biologically unique areas identified in Nebraska's SWAP, 12 were identified in which community interest in conservation was strong. Public meetings were held in these areas to assess interest before the creation of locally based stakeholder groups. When funding was available, the Nebraska Game and Parks Commission funded a coordinating biologist to work

with each of these groups and carry out its day-to-day activities. Some of the initiatives have been remarkably successful in building support for conservation actions; in the Less Canyon, participation in the flagship initiative has convinced local ranchers of the importance of helping to conserve an endangered beetle.

**Partners:** Nebraska Game and Parks Commission, The Nature Conservancy, Pheasants Forever, Northern Prairie Land Trust.

### **Southern Till Plain Grasslands Restoration**

The Nature Conservancy, Illinois Audubon, the Illinois Department of Natural Resources, and the Natural Resources Conservation Service have been working together to restore prairie chickens and other grassland species in greatest need of conservation on the southern till plain in Illinois. This effort began before Illinois' SWAP was developed but is now a major component of the SWAP. The work is being accomplished through land acquisition and habitat restoration on both public and private lands.

**Partners:** The Nature Conservancy, Illinois Audubon, Illinois Department of Natural Resources, Natural Resources Conservation Service.

### **Lakeplain Prairie Project**

Lakeplain Prairie is considered a globally imperiled natural community that harbors over 30 species of greatest conservation need. The Michigan Department of Natural Resources (MDNR) received a 2008 Great Lakes Fish and Wildlife Restoration Act grant from the U.S. Fish and Wildlife Service to identify and restore high quality lakeplain prairie remnants in Michigan. The MDNR will partner with the Michigan State University Extension and the Michigan Nature Association to implement conservation actions that should benefit numerous species of greatest conservation need.

**Partners:** Michigan Department of Natural Resources, Michigan State University Extension and the Michigan Nature Association.

### **Clifftop Alliance**

The Clifftop Alliance, in southwestern Illinois, is a grassroots group which organized to promote the preservation and restoration of blufflands and karst by influencing management practices on private and public lands. These lands are conservation priority areas in Illinois' SWAP, and the Illinois Department of Natural Resources and Illinois Nature Preserves Commission have helped to nurture the Clifftop Alliance by providing it with technical information, equipment, and supplies. The Clifftop Alliance has both implemented management actions on public and private lands and conducted workshops to educate others about land management practices.

**Partners:** Clifftop Alliance, Illinois Department of Natural Resources, Illinois Nature Preserves Commission, USDA Natural Resources Conservation Service.



### **West Virginia Peregrine Falcon Restoration**

The state of West Virginia has unsuccessfully attempted to restore peregrine falcons in the past. In a renewed effort approved by the U.S. Fish and Wildlife Service, they secured peregrine falcons from Virginia and New Jersey for release in West Virginia. Forty-seven birds were released on National Park Service land and the restoration effort received some funding assistance from the National Park Service. Three Rivers Avian Center recruited volunteers to help implement the project.

**Partners:** West Virginia Division of Natural Resources, Three Rivers Avian Center, National Park Service, U.S. Fish and Wildlife Service.

### **Least Tern Conservation in Indiana**

The Indiana Department of Natural Resources, Division of Fish and Wildlife (DFW) using State Wildlife Grant (SWG) funds is working with the Natural Resources Conservation Service (NRCS), Quail Unlimited, and Duke Energy to develop and manage Tern Bar Slough Wildlife Diversity Area in Gibson County, Indiana as a nesting sites for interior least terns. Just prior to the State's purchase of the property, the entire, 840 acre parcel of land, was enrolled by the NRCS in a permanent Wetland Reserve Program (WRP) easement. The NRCS has allowed the DFW to develop 172 acres for nesting least terns, with two, three acres sandbar like islands, surrounded by a moat. The moat (water feature) acts as an attractant to the terns that have nested on adjacent power plant property and feed in the nearby Wabash River. Water level in the moat is maintained during the nesting season, from the Wabash River via a pipeline and electric pump supplied by Duke Energy. The remaining 166 acres, immediately around the islands and moat, and an additional 80 acres were planted to warm season grasses and forbs in partnership with the Patoka Hills Quail Unlimited Chapter. The grassland will be maintained to preclude tree growth that would provide perches for avian predators. The remaining 588 acres have been restored to bottomland hardwood wetlands with support from the NRCS.

**Partners:** Indiana Department of Natural Resources, Natural Resources Conservation Service, Quail Unlimited, and Duke Energy

### **New Jersey Ruffed Grouse Habitat Restoration**

Ruffed grouse are a species of conservation concern in New Jersey. The New Jersey Division of Fish and Wildlife has been working with the Ruffed Grouse Society to improve habitat for grouse in Wildlife Management Areas. Even-aged management in small patches conducted over a number of years will create early successional habitat that will also benefit other species such as snakes and small mammals.

**Partners:** New Jersey Division of Fish and Wildlife, Ruffed Grouse Society

## **Bird Conservation in Nebraska's Biologically Unique Landscapes**

In the development of its SWAP, the Nebraska Game and Parks Commission identified a series of biologically unique landscapes throughout the state. The Game and Parks Commission is now working with a variety of partners to improve bird population in these areas. The Playa Lakes Joint Venture provides the necessary technology for species assessments, helps Nebraska specify population objectives that are consistent with continental objectives, and specifies activities that can help to achieve these objectives. A variety of other partners have provided expertise and resources to support this work.

**Partners:** Nebraska Game and Parks Commission, Playa Lakes Joint Venture, U.S. Fish and Wildlife Service, Pheasants Forever, Nebraska Partnership for All-Bird Conservation, Rainwater Basin Joint Venture, The Nature Conservancy.

## **Columbia Basin Pygmy Rabbit**

The Washington Department of Fish and Wildlife has been working on the recovery of Columbia Basin Pygmy Rabbits in eastern Washington. This species depends on shrub steppe habitat, which is also beneficial for other key species. Part of the recovery effort, therefore, involves land acquisition and habitat restoration. The Natural Resources Conservation Service has been working to align the priorities of its land conservation programs with Washington's Comprehensive Wildlife Conservation Strategy, and this coordination contributes to the pygmy rabbit restoration. The recovery effort also depends on rabbit breeding and translocation.

**Partners:** Washington Department of Fish and Wildlife, Washington Department of Natural Resources, U.S. Fish and Wildlife Service, The Nature Conservancy, Natural Resources Conservation Service, private landowners

## **Pacific Fisher Restoration**

Conservation Northwest is working with the Washington Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and the National Park Service to restore Pacific fishers to Olympic National Park in Washington. Pacific fishers are native to Washington but were extirpated and have not been observed there since the 1970's. Federal, state, and private dollars are funding the restoration work. To date, 47 fishers have been released in the park, they have dispersed well, and their survival rates have been high. This program has maintained a high profile, received significant press coverage, and school children have been enlisted to help with the fishers' release.

**Partners:** Conservation Northwest, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, National Park Service.

## **Broad River Freshwater Mussel Project**

The South Carolina Department of Natural Resources has been working with a variety of stakeholders to bolster populations of freshwater mussels in the Broad River, a major river

system in the state. A dam on the Broad River has effectively prevented the passage of fish that serve as hosts for one life stage of the mussels. Mussel populations are present below the dam, but not above it. With the dam's license up for renewal, a number of stakeholders are involved in research that will inform dam modifications that could contribute to mussel restoration.

**Partners:** South Carolina Department of Natural Resources, Duke Energy, University of South Carolina, The Nature Conservancy, City of West Columbia.

### **North Carolina Mussel Restoration**

The North Carolina Wildlife Resources Commission has recently adapted one of its trout hatcheries to propagate freshwater mussels as part of its mussel restoration efforts. Work done at the North Carolina State University College of Veterinary Medicine helped to develop the mussel propagation techniques. The incorporation of the propagation facility in the trout hatchery was a successful example of North Carolina's ongoing efforts to integrate its game and nongame conservation efforts.

**Partners:** North Carolina Wildlife Resources Commission, North Carolina State University College of Veterinary Medicine.

### **Tumbling Creek Cave Ecosystem Conservation Opportunity Area**

The Tumbling Creek Cave Ecosystem Conservation Opportunity Area lies in the Ozark Highlands of southern Missouri. Tumbling Creek Cave is one of the most studied cave systems in the Midwest, with the highest recorded biological diversity of any cave west of the Mississippi River. At least 110 animal species are represented in this cave. Some of them are endemic. One endemic species, the Tumbling Creek Cavesnail, is federally endangered. Partner organizations have worked together to identify strategies for protecting and restoring the cave fauna. They recently helped a local school replace an old neglected septic system with better sewage management. Partners are also restoring the aboveground habitats to reduce soil erosion.

**Partners:** Ozark Underground Laboratory, Tumbling Creek Cave Foundation, American Cave Conservation Association, Cave Research Foundation, Missouri Conservation Heritage Foundation, Tennessee Aquarium Research Institute, Mark Twain School, The Nature Conservancy, private landowners, Southwest Missouri Resource Conservation and Development Council, Taney County Commission, Taney County Sewage District, U.S. Fish and Wildlife Service; U.S. Geological Survey; USDA Farm Service Agency, USDA Natural Resources Conservation Service, National Park Service, U.S. Forest Service, U.S. Army Corps of Engineers, Taney County Soil and Water Conservation District, Missouri Department of Conservation.

### **West Virginia-Ohio Mussel Restoration**

West Virginia, Ohio, Pennsylvania, and the U.S. Fish and Wildlife Service are collaborating on mussel restoration work in the Ohio River. Mussels that have either been propagated or salvaged in Pennsylvania during large development projects, are being introduced to the Ohio River. The

West Virginia Division of Natural Resources is working with the Ohio River Islands Nation Wildlife Refuge on the restoration work, with the approval of the State of Ohio. Some of the funding from this work comes from mitigation payments from chemical spills.

**Partners:** West Virginia Division of Natural Resources, U.S. Fish and Wildlife Service, Ohio Department of Natural Resources, Pennsylvania Game Commission.

### **Ohio Freshwater Mussel Restoration**

The Ohio Department of Natural Resources Division of Wildlife is helping to coordinate a multi-faceted effort to restore freshwater mussels. This effort includes: (1) propagation and research on freshwater mussels; (2) funding a mussel collection and database manager at The Ohio State University; (3) propagation of darters as hosts for mussels; and 4) restoration of northern riffleshell mussels, a federally endangered species, in Big Darby Creek.

**Partners:** Ohio Department of Natural Resources Division of Wildlife, The Ohio State University, Columbia Zoo and Aquarium, and Franklin County Metroparks.

### **Mac-O-Chee Creek Restoration**

Mac-O-Chee Creek is a tributary of the Mad River and a rare cold water system in the state. The Ohio Division of Natural Resources Division of Wildlife is working with Piatt Castles, an adjacent historic location receiving substantial visitation, to move a one-quarter mile stretch of the stream from a roadside to an adjacent field. This restoration will benefit both the state-threatened tongue-tied minnow and brown trout.

**Partners:** Ohio Department of Natural Resources Division of Wildlife and Piatt Castles

### **Oregon Watershed Enhancement Board**

The Oregon Watershed Enhancement Board, a quasi-state agency which distributes funds from Oregon's lottery, is working with the Oregon Department of Fish and Wildlife to protect iconic species in celebration of Oregon's sesquicentennial. Lottery funds are used to fund conservation projects to help these species in comprehensive wildlife conservation strategy priority areas. An estimated \$1.5 million will be spent on this effort.

**Partners:** Oregon Watershed Enhancement Board, Oregon Department of Fish and Wildlife

### **Pigeon River Restoration**

The Pigeon River was a heavily polluted North Carolina river that had been affected by a century of paper mill operations. Although the pollutants in the river were cleaned up, native fish stocks had been extirpated. The North Carolina Wildlife Resources Commission coordinated a successful effort to restore these native fish stocks involving a paper company, the state of Tennessee, the Eastern Band of Cherokee Indians, and Conservation Fisheries. As part of this effort, a local school set up aquariums in their classrooms in which fish could spawn and then be

released into the river. Following the release of fish, the school children accompanied the lead biologist to a professional meeting in which the restoration effort was presented.

**Partners:** North Carolina Wildlife Resources Commission, State of Tennessee, Eastern Band of Cherokee Indians, Conservation Fisheries, paper company, public schools.

### **Transportation Planning in Oregon**

The Oregon Department of Fish and Wildlife and the Oregon Department of Transportation are working together to integrate wildlife corridors with new and existing transportation projects. This effort will address current problems and will help address new problems expected to surface with climate change. The Oregon Department of Transportation has held a series of 4 workshops with biologists and other experts from a variety of partner organizations, including the Bureau of Land Management and the U.S. Fish and Wildlife Service, to develop maps and establish priorities.

**Partners:** Oregon Department of Fish and Wildlife, Oregon Department of Transportation, Bureau of Land Management, U.S. Fish and Wildlife Service.

### **Funding**

#### **Montana Conservation and Restoration Partnership**

In an effort to further the implementation of Montana's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS), the Heart of the Rockies Initiative, working with Montana Fish, Wildlife, and Parks and Five Valleys Land Trust, convened a varied group of stakeholders to explore common interests in land conservation and identify priority actions with the long-term goal of coordinating future efforts by these parties. Initially, a situation analysis was conducted in which over 100 stakeholders were interviewed in an effort to assess their interests and activities related to Montana's CFWCS. When the initiative hosted a workshop in November 2007 to vet the report, 140 individuals attended – more than three times the number expected. Montana Fish, Wildlife and Parks was assigned the task of forming a 24-member steering committee, the Montana Conservation and Restoration Partnership, which has continued to meet to identify strategies for addressing common needs and for building capacity for action.

**Partners:** Heart of the Rockies Initiative, Five Valleys Land Trust, Montana Fish, Wildlife and Parks, The Nature Conservancy, Montana Association of Land Trusts, watershed councils, county government, agriculture and ranching industry representatives, oil and gas industry representatives

#### **Colorado Land Protection Prioritization**

With development in Colorado rapidly affecting open space, foundations being asked to fund land conservation efforts in Colorado became concerned about prioritizing lands most in need of protection. They asked Colorado land trusts to reach agreement about priority lands. A group of land trusts active in Colorado approached the Colorado Division of Wildlife about developing

shared priorities for land protection. The organizations involved pooled their knowledge, and 24 priority areas were identified. Currently, efforts are underway to secure resources to protect these sites. A new initiative is on the ballot in the fall of 2008 that will create a severance tax to help fund wildlife priorities. The Governor supports the initiative.

**Partners:** Colorado Division of Wildlife, The Nature Conservancy, Trust for Public Land, The Conservation Fund, Colorado Coalition of Land Trusts.

### **Conservation Finance Initiative**

The Nature Conservancy and the Trust for Public Land have been funded by the Doris Duke Charitable Foundation to develop new funding for land conservation. With a goal of securing \$2 billion in new government land acquisition funds, they work to identify states in which SWAPs provide clear priorities for land protection and use research to consider the feasibility of securing state or local approval of new funding sources for land conservation. In states where securing funding is considered feasible, they use non-foundation funds to coordinate lobbying efforts to secure this funding. TPL and TNC have experience in developing practical funding mechanisms for land conservation, and in securing support for legislative and ballot initiatives.

**Partners:** The Nature Conservancy, Trust for Public Land, other organizations.

### **Wisconsin State Wildlife Action Plan Coalition Building**

Using a template developed by the national Teaming With Wildlife Coalition, the Wisconsin Wildlife Federation coordinated a collaborative effort to build political support and funding for SWAP implementation. They organized five regional summits and led Congressional representatives on field trips to SWAP habitat restoration sites. Through these efforts, they help garner support for a state land legacy program and federal SWAP-related legislation.

**Partners:** Wisconsin Wildlife Federation, Wisconsin Department of Natural Resources, Gathering Waters Conservancy, other nongovernmental organizations.

### **Georgia Funding Initiative**

The National Wildlife Federation was awarded a grant from the Doris Duke Charitable Foundation to build coalitions, raise public awareness, and generate funding in support of SWAP implementation in 5 states. One of these states was Georgia. The Georgia Wildlife Federation, convinced of the importance of Georgia's SWAP, worked with the Georgia Department of Natural Resources and convened a large coalition of nongovernmental organizations as part of this effort. The coalition identified five top priority habitats and worked to secure state funding for land acquisitions and easements.

**Partners:** National Wildlife Federation, Georgia Wildlife Federation, other nongovernmental organizations, Georgia Department of Natural Resources.

### **Montana Teaming with Wildlife Coalition**

The Doris Duke Charitable Foundation provided funding to help build a coalition in Montana devoted to advancing the implementation of the state's Comprehensive Fish and Wildlife Conservation Strategy (CFWCS) through securing additional funding and other means. The coalition successfully lobbied for \$1 million in general funding to match funding from the State Wildlife Grants program. This effort was coordinated by the Montana Wildlife Federation.

**Partners:** Doris Duke Charitable Foundation, Montana Fish, Wildlife and Parks, Trout Unlimited, Theodore Roosevelt Conservation Partnership, Montana Wildlife Federation, Montana Audubon, and the Montana Association of Land Trusts.

### **Montana Land Trust-Innkeepers Partnership**

The Montana Association of Land Trusts is working with the Montana Innkeepers Association and the Montana Community Foundation to develop a new private funding base for land conservation. Under this project, which would establish a new link between land trusts and businesses, the hospitality industry would publicize and raise donations from their guests for voluntary private land conservation. The land trusts would use the funding in their conservation efforts, including for priorities identified in Montana's Wildlife Action Plan. Implementation of the initiative begins in the spring of 2009 with an initial goal of raising \$1 to \$1.5 million annually.

**Partners:** Montana Association of Land Trusts, Montana Innkeepers Association, Travel Montana, and the Montana Community Foundation.

### **Vermont Wildlife Partnership**

A coalition of nongovernmental organizations in Vermont are working to secure passage of legislation that will create a 1/8% sales tax to fund wildlife conservation. More than thirty organizations are involved in this effort including the Northern Forest Alliance, Trout Unlimited, the Vermont Federation of Sportsmen, and the Vermont Natural Resources Council. The Wildlife Conservation Society provided a grant to support this campaign. This coalition is widely credited helping protect the Vermont Fish & Wildlife Department's budget while other state agencies' budgets are being cut more significantly due to the collapsing economy.

**Partners:** More than thirty nongovernmental organizations.

## **Labor**

### **Alabama Aquatic Biodiversity Center**

Alabama has more freshwater aquatic species than any other state, including over 750 species of mussels, snails, fishes, and crayfishes. Many of these species are limited to only one, two, or three locations. The Alabama Department of Conservation and Natural Resources has helped to

fund the creation of the Alabama Aquatic Biodiversity Center, which will contribute to the conservation of aquatic biodiversity through the propagation and restoration of aquatic species, primarily mussels and snails.

**Partners:** Alabama Department of Conservation and Natural Resources, Alabama Aquatic Biodiversity Center

### **Habitat Management in Michigan**

The Michigan United Conservation Clubs, the National Wildlife Federation affiliate in Michigan, built a coalition of volunteers to assist the Michigan Department of Natural Resources in management of state land. This assistance, which was prompted by a concern about the state agency being underfunded, was intended to contribute to the protection of endangered species and other management priorities.

**Partners:** Michigan United Conservation Clubs, Michigan Department of Natural Resources

### **Endangered Species Mitigation Fund**

The Utah Division of Wildlife Resources (and its parent agency, the Department of Natural Resources) has been working to prevent additional species from becoming newly listed as endangered or threatened. One of the key factors limiting its success has been a lack of staff. Laws as well as resistance from sportsmen's groups prevent the use of money from the sale of hunting and fishing licenses to support additional staff for nongame species management. Consequently, sportsmen's organizations, the Division of Wildlife Resources, the Department of Natural Resources, and the Utah legislature have worked together to identify additional funding to hire permanent Division of Wildlife Resources staff for nongame activities. The legislature has committed funds for these staff hires provided that their funds are matched dollar for dollar with State Wildlife Grant funding. The additional staffing provides opportunities for more consistency and better delivery of nongame species management.

**Partners:** Utah Division of Wildlife Resources, Utah Department of Natural Resources, sportsmen's organizations, Utah Legislature.

### **Information Base**

#### **Interstate Tallgrass Prairie Initiative**

Tallgrass prairie is an important habitat type in a number of states. The states of Missouri, Iowa, Nebraska, and Kansas are working together with The Nature Conservancy and the U.S. Fish and Wildlife Service to increase the use of management practices that will benefit tallgrass prairie on



both public and private lands. Much of the work has been accomplished through a series of workshops targeting both public and private landowners

**Partners:** Missouri Department of Conservation, Iowa Department of Natural Resources, Nebraska Game and Parks Commission, Kansas Department of Wildlife and Parks, The Nature Conservancy, U.S. Fish and Wildlife Service.

### **New York Forest Owners' Association**

New York State is 60% forested, and 75% of its forest lands are privately owned. The New York Forest Owners' Association is attempting to increase the implementation of wildlife management practices on private lands. It is developing a set of recommended forest management actions based on SWAP priorities and is disseminating these actions to private landowners based on the characteristics of their forest parcels. The New York State Department of Environmental Conservation is supporting this work with SWG funds.

**Partners:** New York Forest Owners' Association, New York State Department of Environmental Conservation, private landowners.

### **Playa Lakes Joint Venture**

The Playa Lakes Joint Venture has been working with the states of Colorado, Texas, New Mexico, Oklahoma, Nebraska, and Kansas to improve the management of isolated plough wetlands so as to benefit greater and lesser prairie chickens. Unlike most joint ventures, which are staffed almost exclusively with federal employees, the Playa Lakes Joint Venture is almost completely staffed by nongovernmental organization representatives, and these organizations and state and federal agencies all have an important influence on its work. The Playa Lakes Joint Venture has worked to inform SWAP development and implementation in the six states in its region as well as to have its owned work informed by the SWAPs of these states.

**Partners:** Playa Lakes Joint Venture, Colorado Division of Wildlife, Texas Parks and Wildlife Department, New Mexico Department of Game and Fish, Oklahoma Department of Wildlife Conservation, Nebraska Game and Parks Commission, Kansas Department of Wildlife and Parks, nongovernmental organizations.

### **North Carolina Birding Trails**

The North Carolina Wildlife Resources Commission is working with nongovernmental organizations, the tourism industry, and community leaders to develop birding trails. The effort involves identification of important birding areas that are accessible by automobile in different regions of the state. A birding trail guide is developed for each region. Local restaurant and hotel owners are offered the opportunity to participate in a training that educates them about the

interests and needs of birders. Participating in the training entitles them to have their businesses advertised in the birding trail guide.

**Partners:** North Carolina Wildlife Resources Commission, tourism industry, community leaders.

### **Genetic Assessment of Alligator Snapping Turtles**

Alligator snapping turtles were historically found in forested rivers and streams in the eastern third of Oklahoma. Today, good populations are present in some areas, but the turtles are rare or absent in others. The U.S. Fish and Wildlife Service has been working on a captive propagation system for this species, but wanted to determine whether populations found in the Red and Arkansas Rivers were distinct before releasing propagated turtles. Consequently, the U.S. Fish and Wildlife Service, the Oklahoma Department of Wildlife Conservation, and Oklahoma State University have been collaborating on a genetic assessment of alligator snapping turtles, which is primarily being funded by State Wildlife Grants.

**Partners:** U.S. Fish and Wildlife Service, Oklahoma Department of Wildlife Conservation, Oklahoma State University.

### **Virginia Freshwater Mussel Propagation**

Virginia has one of the highest diversities of freshwater mussels in North America, but declining water quality has been hurting mussel populations. The Virginia Department of Game and Inland Fisheries has been working with the U.S. Fish and Wildlife Service's Harrison Lake Fish Hatchery to develop propagation techniques for mussels. The development of propagation techniques will contribute to the bolstering of wild mussel populations and the filling of vacant habitats. The Virginia Department of Game and Inland Fisheries has contributed SWG funds and other state funds to this work, and the U.S. Fish and Wildlife Service has provided space and staff.

**Partners:** Virginia Department of Game and Inland Fisheries, U.S. Fish and Wildlife Service.

### **Greater Uwharries Conservation Partnership**

The Uwharries region of the North Carolina Piedmont contains many areas that have been identified as important in North Carolina's SWAP. The Greater Uwharries Conservation Partnership is a coalition of organizations that is interested in conservation in the region in the face of increasing development pressure. The coalition includes state, federal, and local government agencies and nongovernmental organizations. The North Carolina Wildlife Resources Commission used State Wildlife Grant funds to designate a staff member to coordinate the Partnership's work, which has contributed significantly to its effectiveness. The Partnership has used GIS to develop spatially explicit information about threats within the region and particularly valuable areas and corridors that are in need of protection. This information is

beginning to be considered by local government members of the partnership in their planning decisions.

**Partners:** North Carolina Wildlife Resources Commission, other state, federal, and local government agencies.

### **Nevada Conservation Planning Assistance**

The Nevada Department of Wildlife has worked to develop a process for helping federal agencies and other landowners understand the utility of Nevada's SWAP for incorporating wildlife conservation into their planning efforts. NDOW is working with the Bureau of Land Management, the U.S. Forest Service, the Natural Resources Conservation Service, the U.S. Fish and Wildlife Service, and county governments to identify priority species and the habitats that support them, specify habitat parameters that will benefit these species, and set population objectives that are consistent with regional and continental objectives for these species.

**Partners:** Nevada Department of Wildlife, Bureau of Land Management, U.S. Forest Service, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, county government.

### **Prairie Pothole Joint Venture**

The Prairie Pothole region is known for wetlands, grassland and agriculture. The landscape in this region is undergoing rapid change as the focus on energy independence increases. As an example, incentives have increased for farmers to convert to ethanol production. These changes make efforts to identify and conserve important wildlife habitat all the more important. The Prairie Pothole Joint Venture has a long history of devising spatially explicit modeling tools that can help state wildlife managers conserve waterfowl. Recently, they have begun extending these tools to nongame birds and have reached out to SWAP coordinators from Montana, South Dakota, North Dakota, Minnesota, and Iowa. The PPJV is working with state agencies to use its modeling tools to inform priorities for U.S. Farm Bill land conservation programs, which are critical to land conservation and SWAP success in this region.

**Partners:** U.S. Fish and Wildlife Service, Ducks Unlimited, Pheasants Forever, state fish and wildlife management agencies, Natural Resources Conservation Service, U.S. Geological Survey, Audubon, Delta Waterfowl.

### **Wildlife Corridors in California's Central Valley**

Defenders of Wildlife has initiated a collaborative effort to identify wildlife corridors and habitat connectivity to aid in conservation planning and identify lands most in need of protection. This effort is using California's Central Valley bioregion as a pilot site. With the advent of climate change, such conservation efforts have become more complicated because critical lands for

conservation may change over time. This partnership is considering the implications of climate change as part of its work.

**Partners:** Defenders of Wildlife, California Department of Fish and Game, California Department of Transportation, universities.

### **Beginning with Habitat**

Under Maine's tradition of municipal home rule, towns are responsible for shaping their own future by directing growth through local planning boards and attracting businesses through local development corporations. Few towns, however, have the capacity or expertise to know how their decisions today will affect the plant and animal resources. Beginning with Habitat, a cooperative effort of agencies and organizations, was created to fill this niche and is the foundation upon which Maine's Wildlife Action Plan was built. Beginning with Habitat not only provides organized towns throughout the state with comprehensive fish, wildlife, plant, and natural community information tailored to the specific town, but provides local planning entities with technical assistance in crafting tools to address local habitat needs and concerns. Increasingly, towns are turning to Beginning with Habitat to better understand options for local implementation of conservation strategies. Beginning with Habitat is primarily funded with State Wildlife Grant funds.

**Partners:** Maine Department of Inland Fisheries and Wildlife, Maine State Planning Office, Maine Audubon, The Nature Conservancy, Maine Natural Areas Program, U.S. Fish and Wildlife Service, Maine Coast Heritage Trust, Maine Department of Transportation.

### **Priority Habitats and Species Program**

Through the Priority Habitats and Species Program, the Washington Department of Fish and Wildlife maintains detailed spatial information on the distribution of key habitat and key fish and wildlife species. This information is provided to local governments, state and federal agencies, private landowners and consultants, and tribal biologists for use in land use decision making.

**Partners:** Washington Department of Fish and Wildlife, local governments, other state and federal agencies, tribal governments, private landowners.

### **Forest, Wildlife and Communities**

Habitat loss and fragmentation are the biggest threats to wildlife in Vermont. To address this problem The Northern Forest Alliance, Vermont Audubon, and the Vermont Natural Resources Council teamed up to create the Forest, Wildlife and Communities program and will work in partnership with the Vermont Fish & Wildlife Department to provide coordinated technical assistance to private forest landowners; create and promote town level planning and land use

decision tools; and utilize town-owned forests as demonstration sites for wildlife habitat education.

**Partners:** Vermont Fish and Wildlife Department, Northern Forest Alliance, Vermont Audubon, Vermont Natural Resources Council.

### **Local Land Use Planning in Washington**

The Washington Department of Fish and Wildlife has been working with nongovernmental organizations and county and city governments to incorporate wildlife and habitat conservation considerations into local land use decisions. WDFW has coordinated the development of high resolution GIS maps depicting the locations of priority habitats and species for use by local government.

**Partners:** Washington Department of Fish and Wildlife, nongovernmental organizations, city and county governments.

### **New Hampshire SWAP Publicity**

The New Hampshire Fish and Game Department is partnering with the University of New Hampshire Cooperative Extension Program to disseminate information about its SWAP to local land trusts and conservation boards. These efforts, which take advantage of UNH Cooperative Extension's capacity for information dissemination, raise awareness about data and materials that are available to assist in local land use decisions.

**Partners:** New Hampshire Fish and Game Department, University of New Hampshire Cooperative Extension Program.

### **Linking Lands Alliance**

The Linking Lands Alliance (LLA) is an 11-town grassroots community organization working to protect significant areas of unfragmented habitat and wildlife travel corridors within Vermont's "Upper Valley." To achieve its goal, the Alliance is partnering with the Vermont Fish & Wildlife Department's Community Wildlife Program to employ a novel, local perspective, to regional habitat and connectivity conservation. Like more landscape scale conservation efforts, the Alliance is working with state and local wildlife experts to assess landscape components that encompass a broad range of habitats. However, it is also working with members in each community to identify the places regarded as special and important for enjoying and appreciating the natural environment. When completed, LLA's Wildlife Initiative map will combine science-based evaluations for wildlife habitat of the multi-town landscape with important natural assets identified by the communities. The information will then be used as a guide for landowners and local decision makers to coordinate land use planning to ensure that people, and wildlife continue to thrive in the Upper Valley.

**Partners:** Vermont Fish and Wildlife Department and the conservation commissions of Hartland, Hartford, Norwich, Strafford, Thetford, Sharon, Pomfret, Woodstock, and West Fairlee

### **Montana Priority Hunting and Fishing Areas**

The Theodore Roosevelt Conservation Partnership (TRCP) worked with 40 sportsmen's organizations in 30 Montana cities to identify key "bread and butter" hunting and fishing areas for conservation. TRCP had members of these clubs map their favorite ("bread and butter") hunting and fishing areas. They subsequently created a GIS layer depicting these areas that can be overlaid on lands and waters with critical habitat. This combined habitat and social use information has contributed to decision making about minimizing the impacts of development.

**Partners:** Theodore Roosevelt Conservation Partnership, sportsmen's organizations.

### **South Dakota Identification of Priority Habitat Areas**

The South Dakota Department of Game, Fish and Parks (SDGFP) is partnering with the Ecosystem Management Research Institute (EMRI) to refine their efforts to identify key ecosystems in the state. SDGFP used EMRI's ecosystem diversity approach to characterize historical vegetation and estimate the loss of native habitats in the state. This approach established priorities for conservation based on historical decline and importance to species of greatest conservation need. This approach is being tested and refined on a portion of the prairie pothole region in northcentral South Dakota, a relatively intact ecoregion that leads the nation in waterfowl production and is an important nesting area for grassland-dependent shorebird species.

**Partners:** Ecosystem Management Research Institute, South Dakota Department of Game, Fish and Parks, Ducks Unlimited, The Nature Conservancy, U.S. Fish and Wildlife Service.

### **Mapping of Presettlement Land Cover in Oklahoma**

Most historical land cover information for Oklahoma is from the 1940s or later. The Conservation Exchange Group in Oklahoma (a partnership consisting of the Oklahoma Department of Wildlife Conservation, the Oklahoma Natural Heritage Inventory, the U.S. Fish and Wildlife Service, and The Nature Conservancy) determined that better information about presettlement land cover was needed in order to establish land conservation priorities within Oklahoma's Comprehensive Wildlife Conservation Strategy. The majority of the funding for this work has come from State Wildlife Grants with the Oklahoma Natural Heritage Inventory contributing a 25% match. The work, based on historical records, is being conducted by the University of Oklahoma with the assistance of the Natural Heritage Inventory.

**Partners:** Oklahoma Department of Wildlife Conservation, Oklahoma Natural Heritage Inventory, U.S. Fish and Wildlife Service, The Nature Conservancy, University of Oklahoma

### **Indiana Conservation Research**

The Indiana Department of Natural Resources (using SWG funds) has partnered with Purdue University - Department of Forestry and Natural Resources, and The Nature Conservancy – Indiana Chapter, to carry out research that is vital to the success of the Indiana Comprehensive

Wildlife Strategy. This research has contributed to a variety of needs, including the evolution of management options for the Allegheny wood rats and hellbenders. The Indiana Department of Natural Resources has defined many of the research needs and projects. Purdue University has both carried out the research and supplied much of the required matching funds. The Nature Conservancy has provided additional funds and some logistical support.

**Partner:** Indiana Department of Natural Resources, Purdue University, and The Nature Conservancy.

### **Identification of Remnant Grassland Communities in Kentucky**

The Kentucky State Nature Preserves Commission is working with the Kentucky Department of Fish and Wildlife Resources to identify the best remaining grassland areas in interior Kentucky. The Kentucky State Nature Preserves Commission is orchestrating aerial surveys to meet this need. State Wildlife Grants are providing partial funding for this work. After high-quality remnant grasslands are identified, vertebrate surveys will occur, and the Kentucky State Nature Preserves Commission will work to conserve and protect sites ranked as high-priority.

**Partners:** Kentucky State Nature Preserves Commission, Kentucky Department of Fish and Wildlife Resources

### **South Dakota Big Sagebrush Mapping**

South Dakota has a small area of sagebrush and a small population of greater sage-grouse (a species of greatest conservation need) in the northwest and southwest parts of the state. The South Dakota Department of Game, Fish and Parks is working with several federal agencies to map the areas of remaining sagebrush to contribute to efforts to conserve the greater sage-grouse and other sage-dependent species. The Bureau of Reclamation's "GIS and Remote Sensing Group" is conducting the mapping work on lands managed by the Bureau of Land Management and other public lands. This work is being funded by State Wildlife Grants matched by other funding from the South Dakota Department of Game, Fish and Parks. The U.S. Forest Service is conducting similar mapping work on its lands.

**Partners:** South Dakota Department of Game, Fish and Parks, Bureau of Reclamation, Bureau of Land Management, U.S. Forest Service.

### **West Virginia Cave Inventory**

The West Virginia Division of Natural Resources is funding an inventory of cave invertebrates on National Forest land in West Virginia. This inventory is intended to address a general lack of information about cave invertebrate distribution and status and potentially identify species not currently known in West Virginia.

**Partners:** West Virginia Division of Natural Resources, U.S. Forest Service.

### **West Virginia Wetland Inventory**

The West Virginia Division of Natural Resources is partnering with the U.S. Environmental Protection Agency, West Virginia University, and the West Virginia Department of Environmental Protection to inventory wetland areas in West Virginia. West Virginia has fewer wetland areas than Rhode Island, but the areas that they do have are priority habitats under the SWAP.

**Partners:** West Virginia Division of Natural Resources, U.S. Environmental Protection Agency, West Virginia University, West Virginia Department of Environmental Protection.

### **Georgia Coastal Habitat Mapping**

The Georgia Conservancy has been working with the Association of County Governments in Georgia to develop detailed maps of habitats in coastal counties. These maps will help support land acquisition decisions and contribute to the administration of shoreland and marshland protection acts. This effort grew out of relationships that were fostered during the development of Georgia's State Wildlife Action Plans.

**Partners:** Georgia Conservancy, Association of County Governments in Georgia.

### **Alabama Survey of Species of Greatest Conservation Need**

The Alabama Department of Conservation and Natural Resources manages a variety of properties, but many of these properties do not have management plans that address greatest conservation need species. To prioritize those properties that are most important to greatest conservation need species, the Auburn Cooperative Fish and Wildlife Unit is surveying and modeling the needs of GCN species on these properties. This five-year effort involves both the Alabama Department of Conservation and Natural Resources and university specialists associated with a variety of taxa.

**Partners:** Auburn Cooperative Fish and Wildlife Unit, Alabama Department of Conservation and Natural Resources, Auburn University.

### **New Hampshire Species Monitoring**

The New Hampshire Fish and Game Department is collaborating with the New Hampshire Natural Heritage Bureau and New Hampshire Audubon to monitor and maintain data on species occurrence throughout the state. The New Hampshire Fish and Game Department helps to fund two positions, one housed in the New Hampshire Natural Heritage Bureau and one housed in New Hampshire Audubon, to assist with this work.

**Partners:** New Hampshire Fish and Game Department, New Hampshire Natural Heritage Bureau, New Hampshire Audubon.



### **Kansas Herpetological and Mammals Atlases**

The Kansas Department of Wildlife and Parks provided Fort Hays State University with funding to develop statewide herpetological and mammals atlases. Both efforts are complete but will be revised and maintained over time.

**Partners:** Kansas Department of Wildlife and Parks, Fort Hays State University.

### **Second Pennsylvania Breeding Bird Atlas**

The Carnegie Museum is coordinating the development of an updated breeding bird atlas in Pennsylvania. The Pennsylvania Game Commission is supporting this effort through SWG funds and the Wild Resources Conservation Fund. This effort has been ongoing for the past five years, with plans to publish in 2011.

**Partners:** Carnegie Museum, Audubon Pennsylvania, Cornell Lab of Ornithology, National Park Service, Pennsylvania Game Commission, Pennsylvania Society for Ornithology, The Pennsylvania State University, Pennsylvania Department of Conservation and Natural Resources.

### **Maryland Important Bird Areas Program**

In an effort to influence local land use decisions on both public and private lands, Maryland has developed a program to develop areas that are important to birds. To date, 26 areas have been identified as Important Bird Areas throughout Maryland. This effort has prioritized the four counties on Maryland's eastern shore to work closely with local planning agencies to encourage conservation of these areas. The National Audubon Society has led the effort, which has been supported by Maryland's SWG funds.

**Partners:** National Audubon Society, Maryland Department of Natural Resources.

### **South Dakota Colonial Nesting Bird Survey and Monitoring**

The South Dakota Department of Game, Fish and Parks used State Wildlife Grant funds to contract with the Rocky Mountain Bird Observatory to survey colonial waterbird nesting species in South Dakota. This work established a baseline database on these colonies, and helped raise awareness and build regional and local ownership of these colonies. The initial survey was followed by the development of an ongoing plan to monitor these colonies. Tribal governments, the National Park Service, the U.S. Fish and Wildlife Service, other organizations, and volunteer birders have collaborated in these efforts.

**Partners:** Rocky Mountain Bird Observatory, South Dakota Department of Game, Fish and Parks, tribal governments, National Park Service, U.S. Fish and Wildlife Service.

### **Oklahoma River Ecosystem Conservation**

Because of concern about possible future out-of-state water sales, the Oklahoma Department of Wildlife Conservation (ODWC) is partnering with Oklahoma State University and the University of Oklahoma to gather information that can provide the biological foundation for these sales if they become more imminent. This work includes a rare mussel survey, a physiological study of mussels under different flow regimes, the development of a digital fish atlas, and a fluvial geomorphology study. The Ouachita Mountains in southeastern Oklahoma is the focal area for these projects.

**Partners:** Oklahoma Department of Wildlife Conservation, Oklahoma State University, University of Oklahoma.

### **Citizen Bat Monitoring in Wisconsin**

The Wisconsin Department of Natural Resources recognized they needed more information about bats for their management efforts. They combined SWG funding with other funding sources to develop a citizen monitoring program focused on bats. Citizen volunteers record bat calls, which are later uploaded with GPS information and analyzed to identify bats and the locations at which they are found.

**Partners:** Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Citizen-Based Monitoring Network of Wisconsin, citizens.

### **West Virginia Golden-winged Warbler Inventory**

The West Virginia Division of Natural Resources is collaborating with several partners on an effort to gather data on nesting success of golden-winged warblers throughout the state.

**Partners:** West Virginia Division of Natural Resources, U.S. Partners in Flight Program, West Virginia University, U.S. Forest Service, Cornell Lab of Ornithology, National Fish and Wildlife Foundation.

### **Welda Prairie**

The Welda Prairie is a high quality prairie remnant east of the Flint Hills in Kansas that is currently owned by the University of Kansas at Lawrence. Together with the Kansas Department of Wildlife and Parks and The Nature Conservancy, the University of Kansas is working to identify key species on the parcel and to encourage adjoining landowners to implement management practices on their land that will benefit prairie habitat.

**Partners:** University of Kansas at Lawrence, Kansas Department of Wildlife and Parks, The Nature Conservancy

### **Oklahoma Crayfish Study**

Five species of crayfish in Oklahoma are species of greatest conservation need, but little data about crayfish are available. However, the Oklahoma Department of Environmental Quality has implemented a biomonitoring project focused on fish since 1977, and crayfish incidentally taken during the course of this work have been stored for many years. The Oklahoma Department of Wildlife Conservation, the Oklahoma Department of Environmental Quality, and the San Noble Museum of Natural History have partnered to identify these crayfish. This work has resulted in a threefold increase in the number of species of crayfish in Oklahoma, including some rare species.

**Partners:** Oklahoma Department of Wildlife Conservation, Oklahoma Department of Environmental Quality, San Noble Museum of Natural History.

### **Redbird River Mussel Monitoring**

The Kentucky Department of Fish and Wildlife Resources and the Kentucky State Nature Preserves Commission are partnering to implement a long-term mussel monitoring project on the Redbird River. Beginning in 2008, biologists will survey sites on the Redbird River that were extensively surveyed nineteen years ago. The resulting data will provide an indication of long-term mussel trends for these sites, and will be important for continued monitoring of Kentucky's mussel resources.

**Partners:** Kentucky Department of Fish and Wildlife Resources, Kentucky State Nature Preserves Commission.

### **Eastern Hellbender Population Assessment**

The Eastern Hellbender is widely viewed as a species in decline, and there is very little evidence of recruitment throughout its range. Although Kentucky lies in the heart of the eastern hellbender's range, biologists do not currently have a clear understanding of its population status. The Kentucky Department of Fish and Wildlife Resources is using State Wildlife Grant funds to partially fund work by Gregory Lipps LLC, a consulting firm, to determine the status of this species in the Licking and Kentucky River Watersheds. If healthy populations of hellbenders are identified in these watersheds, targeted conservation efforts to protect these populations will occur.

**Partners:** Kentucky Department of Fish and Wildlife Resources, Gregory Lipps LLC

### **Northern Forest Woodcock Initiative**

Most SWAPs in the states of the Northeast and upper Midwest have identified many wildlife species associated with early successional habitat (grasslands and shrublands) as in need of conservation attention. The Wildlife Management Institute (WMI) is leading efforts by a variety of stakeholders to develop Best Management Practices (BMPs) to improve early successional habitat. WMI is coordinating a series of projects by a variety of contractors, primarily on state and federal properties, to implement BMPs and demonstrate their effects. Information from

these efforts will then be incorporated into outreach to private landowners. This effort received the U.S. Department of Interior's Cooperative Conservation Award for 2008.

**Partners:** Wildlife Management Institute, Northeast Association of Fish and Wildlife Agencies, state fish and wildlife management agencies, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, U.S. Geological Survey, Ruffed Grouse Society, Vermont Audubon, private landowners.

### **White-nosed Disease Research in Indiana**

The Indiana Department of Natural Resources is working with the U.S. Fish and Wildlife Service and Indiana State University to assess the impacts of white-nosed disease on the State's Indiana bats. Monitoring the health and status of Indiana bats is supported by funds from two federal programs, Section 6 Endangered Species Act funds and the State Wildlife Grant funds. The nonfederal match is provided by the state's Nongame Fund and Indiana State University.

**Partners:** Indiana Department of Natural Resources, U.S. Fish and Wildlife Service, Indiana State University.

### **Interior Least Tern Habitat Restoration**

Interior least terns in Kentucky have been utilizing dredge islands in the Ohio and Mississippi Rivers, but wildlife managers have been uncertain about whether the terns have been using these areas because they provide suitable habitat or because preferred sandbars have become overgrown with vegetation. Consequently, the Kentucky Department of Fish and Wildlife Resources is providing State Wildlife Grant funds to partially support work by Eastern Kentucky University. The university is studying habitat needs of the terns and improving habitat suitability on sandbars by eliminating vegetation.

**Partners:** Kentucky Department of Fish and Wildlife Resources, Eastern Kentucky University.

### **Saginaw Bay *Phragmites* Demonstration**

The Michigan Department of Natural Resources and several other governmental and nongovernmental organizations are collaborating on a study of control methods for *Phragmites*. Approximately one hundred fifty acres in Saginaw Bay were used to demonstrate a variety of chemical and mechanical methods for *Phragmites* control. The work is being funded by the U.S. Environmental Protection Agency, BASF, and the National Fish and Wildlife Foundation. Information regarding challenges faced and successes achieved during the demonstration project will be collected and shared with natural resource managers in the Great Lakes Basin working on treating and controlling *Phragmites*. This project will also educate and demonstrate to

stakeholders how to effectively and legally control *Phragmites* in Michigan's Great Lakes coastal wetlands.

**Partners:** Michigan Department of Natural Resources, Michigan Department of Environmental Quality, Ducks Unlimited, U.S. Environmental Protection Agency, BASF, National Fish and Wildlife Foundation, Hampton Township, Bay County.

## **Agreement**

### **Natural Community Conservation Planning Program**

The California Department of Fish and Game developed its Natural Community Conservation Planning (NCCP) program to promote multi-species conservation at a regional scale while allowing for compatible development activities. A variety of local stakeholders have been engaged in the process of developing regional plans in different parts of the state with the Department of Fish and Game and the U.S. Fish and Wildlife Service providing the necessary support and guidance.

**Partners:** California Department of Fish and Game, U.S. Fish and Wildlife Service, local government, nongovernmental organizations.

### **Sage Grouse Conservation through Utah's Community-based Conservation Program**

The Utah Division of Wildlife Resources entered into a cooperative agreement with Utah State University Extension to improve habitat for sage grouse without jeopardizing local interests. Twelve locally based sage grouse working groups were created to develop adaptive resource management plans that would improve range conditions and sage grouse habitat to both benefit sage grouse and help maintain the range as a working landscape and protect the local way of life. Each working group is composed of private landowners and other local stakeholders and is facilitated by Utah State University Extension. The groups have been meeting for more than five years.

**Partners:** Utah Division of Wildlife Resources, Utah State University Extension, sage grouse working groups.

### **Georgia Smoke Management Plan**

Prescribed burns are very important to habitat management on many lands in Georgia. However, it has been difficult for Georgia to develop its prescribed burning program because of the increasing population and federal air quality regulations. The Prescribed Fire Council provided leadership in the development of a smoke management plan to address these obstacles. This effort also included the Georgia Forestry Commission, which is responsible for the prescribed

burning plans, the Georgia Environmental Protection Division, which is responsible for air quality regulations, and the Georgia Department of Natural Resources.

**Partners:** Prescribed Fire Council, Georgia Forestry Commission, Georgia Environmental Protection Division, Georgia Department of Natural Resources.

### **Alternate Cattle Water Sources in Ohio**

Cattle use of rivers and streams for water degrades water quality and is detrimental to a variety of aquatic species. The Ohio Department of Natural Resources (ODNR) Division of Wildlife has worked with several Soil and Water Conservation Districts to exclude cattle from rivers and streams and develop alternate water sources for their use. The Ohio Division of Wildlife provided the match for Landowner Incentive Program grants.

**Partners:** Ohio Department of Natural Resources Division of Wildlife, Soil and Water Conservation Districts.

### **Dam Removal in Wisconsin**

Numerous dams in Wisconsin are over fifty years old and in need of attention. The Wisconsin Department of Natural Resources is working with a variety of partners to remove dams, restore associated wetlands, and remove native species. These projects benefit a whole array of species that require passage on rivers and streams. Partners have filled a variety of roles in these projects. Wisconsin DNR has provided SWG funding and has helped with permits and procedural requirements. The U.S. Fish and Wildlife Service and the Natural Resources Conservation Service have contributed expertise. The Nature Conservancy has carried out dam removals on its own properties.

**Partners:** Wisconsin Department of Natural Resources, U.S. Fish and Wildlife Service, Natural Resources Conservation Service, The Nature Conservancy.

### **Pecatonica River Restoration**

The Pecatonica River in southwestern Wisconsin had been negatively impacted by agriculture, which led to siltation and influenced the abundance of plant and animal species. The Wisconsin Department of Natural Resources has worked with a variety of governmental and nongovernmental partners to restore the river and monitor the effects of restoration efforts.

**Partners:** Wisconsin Department of Natural Resources, Prairie Enthusiasts, The Nature Conservancy, U.S. Fish and Wildlife Service, Iowa County Highway Department, universities. University of Wisconsin Extension, University of Wisconsin Platteville, University of Wisconsin Center for Limnology

### **Trinity River Watershed Restoration**

The Trinity Basin Conservation Foundation is working with the Texas Parks and Wildlife Department to restore prairie along the Trinity River. The foundation is particularly interested in the benefits of this work for bobwhite quail, but many other grassland species will also benefit.

**Partners:** Trinity Basin Conservation Foundation, Texas Parks and Wildlife Department.

### **Lake Wales Ridge Fire Strike Team**

There are now approximately 9.5 million acres in conservation management in Florida of which about 50 percent require fire every few years. Because the job is so large, and resources are often limited, many of these lands have gone without fire for years. These overgrown lands are losing their ability to sustain Florida's native wildlife. The state of Florida has funded The Nature Conservancy to coordinate the oversight of the Lake Wales Ridge Fire Strike Team. Because fire is critical to maintenance of healthy scrub habitat in central Florida, the purpose of the strike team is to respond quickly to opportunities for prescribed burning at appropriate times. The Nature Conservancy trains the strike teams and works to increase the capacity of land managers to perform more prescribed fires and to conduct difficult prescribed burns safely. The effort is overseen by a steering committee including representatives of The Nature Conservancy, the U.S. Fish and Wildlife Service, and local land managers.

**Partners:** The Nature Conservancy – Florida chapter, U.S. Fish and Wildlife Service, local land managers.

### **Tri-colored Blackbird Conservation Strategy**

Tri-colored blackbirds are almost endemic to California and are associated primarily with agricultural areas with the majority of colonies on private lands. The species has suffered with loss of wetlands. Attempts have been to federally list these species, but the development of a voluntary comprehensive conservation strategy was viewed as a preferable approach. More than a dozen state, federal, nongovernmental, and industry organizations joined together to create and implement this strategy. The group has reached an implementation agreement, and work to implement that agreement is underway by Audubon and others.

**Partners:** California Department of Fish and Game, Audubon, Point Reyes Bird Observatory, U.S. Fish and Wildlife Service, U.S. Department of Agriculture, U.S. Geological Survey, farm bureau, cattlemen's organization.

### **Southeast Regional Partnership for Planning and Sustainability Gopher Tortoise Restoration**

Under the auspices of the Southeast Regional Partnership for Planning and Sustainability, the U.S. Department of Defense and natural resource officials from Florida, Georgia, Alabama, and South Carolina set out to proactively develop a candidate conservation agreement to restore gopher tortoises and prevent their listing under the Endangered Species Act in their eastern

range. (They are already listed in their western range.) Although gopher tortoises were the focus of the agreement, they are a keystone species that modifies habitat through the building of their burrows in a way that benefits many other species. Longleaf pine and red-cockaded woodpeckers are key species that will also benefit from gopher tortoise restoration efforts.

**Partners:** U.S. Department of Defense, state fish and wildlife management agencies in Florida, Georgia, Alabama, and South Carolina, U.S. Forest Service, U.S. Fish and Wildlife Service.

### **Eastern Hellbender Restoration in Ohio**

Captina Creek in Ohio has the last self-sustaining population of eastern hellbenders in the state. The Ohio Department of Natural Resources (ODNR) Division of Wildlife is working with the ODNR Division of Soil and Water Conservation to develop a Watershed Action Plan that could protect eastern hellbenders. Additional surveys will be conducted to determine what makes Captina Creek unique.

**Partners:** Ohio Department of Natural Resources Division of Wildlife and Division of Soil and Water Conservation.

### **Blackbird-Millington Corridor Plan**

The Blackbird-Millington corridor has some of the best forest cover on the Delmarva and supports a wide variety of species of conservation concern. Because of increasing threats to this area from development pressure, The Nature Conservancy and the Delaware Department of Natural Resources and Environmental Control formed a partnership to develop a community conservation plan for the area. The Nature Conservancy convened over 60 experts from 30 agencies and organizations and over 150 local citizens during this planning process. The resulting plan focuses on land protection, habitat restoration, compatible economic uses, education, and research. Both the Delaware Department of Natural Resources and Environmental Control and the National Oceanic and Atmospheric Administration have since committed funds to acquiring key properties identified in the plan. Working together, the Department of Natural Resources and Environmental Control and the Nature Conservancy continue to implement the plan.

**Partners:** Delaware Department of Natural Resources and Environmental Control, the National Oceanic and Atmospheric Administration, the Delaware Open Space Council, and citizens.

### **Oregon Conservation Leaders Group**

In an effort to support the implementation of its Comprehensive Wildlife Conservation Strategy, the Oregon Department of Fish and Wildlife organized all of its conservation partners into a Conservation Leaders Group. This group of 18 organizations, which includes both hunters and anglers organizations and environmental organizations, provided an opportunity for communication and development of relationships between diverse stakeholders. The group has



established common priorities on topics such as habitat and invasive species and is working to develop funding sources to support work on these priorities.

**Partners:** Oregon Department of Fish and Wildlife, Defenders of Wildlife, The Nature Conservancy, Rocky Mountain Elk Foundation, and others.

### **Maryland Wildlife Diversity Advisory Committee**

The Maryland Department of Natural Resources has established a Wildlife Diversity Advisory Committee to provide advice on the implementation of Maryland's Wildlife Diversity Conservation Plan and help evaluate SWG funding proposals. The idea for creating this 11-member committee, which includes nongovernmental organizations from throughout the state, was stimulated by discussions within Maryland's Teaming with Wildlife Coalition. The committee meets every other month and has identified the top five overarching actions from Maryland's Plan.

**Partners:** Maryland Department of Natural Resources, conservation nongovernmental organizations.

### **Managing Maine's Wildlife to Meet Society's Expectations**

Maine's process for developing management goals and objectives for its species of greatest conservation needs begins with the creation of multi-stakeholder public working groups for each species or group of species. The composition of working groups is structured to ensure representation of a variety of interests (state and federal agencies, sportsmen's groups, NGOs, landowners, tourism groups, citizens, outspoken critics, etc.) as well as a geographical mix. The Maine Department of Inland Fisheries and Wildlife presents each working group with a "species assessment", an exhaustive review and analysis of all that is known about that species in. The species assessment develops informed stakeholders and establishes common ground. The working groups are responsible for developing goals and objectives within the biological sideboards of the species assessment, and the Department of Inland Fisheries and Wildlife provides feedback to the working group on the feasibility, desirability, and possible consequences of the goals and objectives for their consideration. The goals and objectives are then presented to a 10-member citizen's advisory council (Maine's Fish and Wildlife Advisory Council) for their endorsement. Once the goals and objectives are endorsed by the Advisory Council, the department prepares a Management System, which outlines how it will determine if it is meeting management objectives and what management actions it will take if the objectives are not being met. To date, goals and objectives have been developed for about 50% of Maine's species of greatest conservation need.

**Partners:** Maine Department of Inland Fisheries and Wildlife, species working groups (state and federal agencies, sportsmen's organizations, nongovernmental organizations, landowners, tourism industry, citizens, etc.), Maine's Fish and Wildlife Advisory Council.

### **Alabama Forest Stewardship Council Priorities**

The Alabama Forest Stewardship Council, which is composed of government agencies, nongovernmental organizations, and representatives of the agriculture and forest product

industries, is the decision-making body for the U.S. Forest Service Forest Legacy Program in Alabama. It is currently in the process of deciding whether to align Alabama's Forest Legacy Program priorities with Alabama's SWAP. This decision would also meet a U.S. Forest Service mandate for state Forest Legacy Programs to refine their priorities.

**Partners:** U.S. Forest Service Forest Legacy Program, Alabama Forest Stewardship Council (which includes a number of partners), Alabama Forever Wild Program.

### **Georgia Transportation Project Mitigation**

Because of the impacts of transportation projects on wildlife and habitat, the Georgia Department of Transportation has been working with the Georgia Department of Natural Resources to mitigate these impacts. The two agencies have signed an agreement, which calls for the Department of Transportation to purchase mitigation sites and the Department of Natural Resources to manage these sites.

**Partners:** Georgia Department of Natural Resources, Georgia Department of Transportation.

### **Western Governors' Association Wildlife Corridors Initiative**

In June 2008, the Western Governors' Association (WGA) created a Wildlife Habitat Council to implement a set of recommendations the WGA had developed to protect wildlife migration corridors and crucial habitat. The Wildlife Corridors Initiative is focusing on promoting the integration of wildlife and habitat into planning decisions in a variety of different arenas. It has had five working groups addressing the topics of oil and gas, energy, transportation infrastructure, land use, and climate change.

**Partners:** Western Governors' Association, Alaska, American Samoa, Arizona, California, Colorado, Guam, Hawaii, Idaho, Kansas, Montana, Nebraska, Nevada, New Mexico, North Dakota, Northern Mariana Islands, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, Wyoming.

### **Vermont Transportation Planning**

Because of concerns about the impacts of roads on wildlife, the Vermont Fish and Wildlife Department and the Vermont Agency of Transportation have established a steering committee to develop better guidelines to protect habitat and wildlife in the design of transportation projects. Staff members from both agencies also have participated together in a "Habitats and Highways" training program to develop a common basis of understanding problems involving wildlife and transportation. New Hampshire and Maine are also engaged in similar efforts, and these three states hold joint annual conferences on this topic.

**Partners:** Vermont Fish and Wildlife Department, Vermont Agency of Transportation, New Hampshire Fish and Game Department, Maine Department of Inland Fisheries and Wildlife.

### **Interagency Aquatic Connection Team (InterACT)**

The New York State Department of Transportation and the New York State Department of Environmental Conservation have formed an interagency, interdisciplinary team to address aquatic connectivity. Ten agencies work together to ensure that stream crossings are designed, built, and maintained in such a way that aquatic connectivity is protected. The Department of Transportation and the Department of Environmental Conservation have funded The Nature Conservancy to conduct research to identify possible solutions to problems caused by the transportation system.

**Partners:** NYS Department of Transportation, NYS Department of Environmental Conservation, NYS Thruway Authority, NYS Office of Parks, Recreation and Historic Preservation, Adirondack Park Agency, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Federal Highway Administration, Warren County Soil and Water Conservation District, New York Natural Heritage Program.

### **Michigan's Invasive Species Strategies and Guidelines**

The Michigan Department of Natural Resources is working with a variety of other government agencies and nongovernmental organizations to develop guidelines for addressing invasive species. Invasive species are considered one of the biggest threats to native wildlife in Michigan. Michigan DNR supplies State Wildlife Grant funds for this effort, which is being implemented by Michigan State University Extension in collaboration with the other organizations involved.

**Partners:** Michigan Department of Natural Resources, Michigan State University Extension, U.S. Forest Service, U.S. Department of Agriculture, Michigan Department of Agriculture, The Nature Conservancy, land trusts.

### **Northeast Regional Conservation Needs Grants Program**

The thirteen northeastern states and the District of Columbia have established a partnership to address regional conservation needs. Because many of the needs identified in the SWAPs are best addressed at a landscape scale, the states work together to identify regional priorities and fund activities to address these priorities. Each state contributes 4% of its State Wildlife Grant allocation to funding initiatives through the Northeast Regional Conservation Needs Grants Program. The Wildlife Management Institute publicizes and administers the periodic Requests for Proposals. Some of the efforts funded across the northeastern regions include a collaborative project with The Nature Conservancy to develop common habitat classification language between states and an effort to identify measures that can be used to monitor progress in achieving SWAP goals and objectives.

**Partners:** Wildlife Management Institute, state fish and wildlife management agencies of the thirteen northeastern states and the District of Columbia, project grantees.

### **Mid-America Regional Council**

The Mid-America Regional Council, a regional planning organization that encompasses nine cities and two million people in Missouri and Kansas, facilitates collaborative discussions, planning, and policy initiatives on a wide variety of topics, including environmental issues. Restoration efforts in two of Missouri's SWAP conservation opportunity areas (Iatan Weston and Blue River) were closely related to MARC's interests. MARC has played a facilitating role in these efforts, hosting meetings of diverse stakeholders to try to knit together various independent, but interrelated, restoration efforts.

**Partners:** Mid-America Regional Council, Missouri Department of Conservation, U.S. Army Corps of Engineers, Jackson and Platte County Parks and Recreation Departments, Audubon Missouri, Missouri Resource Assessment Program, local governments.

## **Appendix B**

### **List of All Collaborators in SWAP Implementation Efforts**

This appendix includes a complete list of all the collaborators described as being associated with the 144 collaborative SWAP implementation efforts we documented. They are sorted by type.

#### **Federal Agencies and Programs**

##### **U.S. Department of Agriculture (other than U.S. Forest Service)**

- Farm Service Agency
- Natural Resources Conservation Service
- Agricultural Research Service

##### **U.S. Forest Service**

- U.S. Forest Service Forest Legacy Program

##### **U.S. Department of Defense**

##### **U.S. Fish and Wildlife Service**

##### **U.S. Geological Survey**

- Cooperative Fish and Wildlife Units

##### **Other Federal Agencies and Programs**

- Bonneville Power Administration
- Bureau of Land Management
- Bureau of Reclamation
- Federal Highway Administration
- National Oceanic and Atmospheric Administration
- National Park Service
- Southwest Missouri Resource Conservation and Development Council
- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers

#### **Tribes**

- Eastern Band of Cherokee Indians

#### **States and Territories (governors, legislatures, etc.)**

- Alaska
- American Samoa
- Arizona
- California
- Colorado
- Guam
- Hawaii
- Idaho
- Kansas
- Montana

**States and Territories (governors, legislatures, etc.) (continued)**

Nebraska  
Nevada  
North Dakota  
Oklahoma  
Oregon  
New Mexico  
Northern Mariana Islands  
South Dakota  
Tennessee  
Texas  
Utah  
Washington  
Wyoming  
Western Governors' Association

**State Fish and Wildlife Agencies**

Alabama Department of Conservation and Natural Resources  
Arkansas Game and Fish Commission  
California Department of Fish and Game  
Colorado Division of Wildlife  
Connecticut Wildlife Division  
Delaware Department of Natural Resources and Environmental Control  
Florida Fish and Wildlife Conservation Commission  
Georgia Department of Natural Resources  
Georgia Division of Wildlife Resources  
Illinois Department of Natural Resources  
Indiana Department of Fish and Wildlife  
Iowa Department of Natural Resources  
Kansas Department of Wildlife and Parks  
Kentucky Department of Fish and Wildlife Resources  
Louisiana Department of Wildlife and Fisheries  
Maine Department of Inland Fisheries and Wildlife  
Maryland Department of Natural Resources  
Massachusetts Division of Fisheries and Wildlife  
Michigan Department of Natural Resources  
Minnesota Department of Natural Resources  
Missouri Department of Conservation  
Montana Fish, Wildlife and Parks  
New Jersey Division of Fish and Wildlife  
New Mexico Department of Game and Fish  
New York State Department of Environmental Conservation  
North Carolina Wildlife Resources Commission  
North Dakota Game and Fish Department  
Northeast Association of Fish and Wildlife Agencies  
New York State Department of Environmental Conservation

**State Fish and Wildlife Agencies (continued)**

Ohio Department of Natural Resources  
Oklahoma Department of Wildlife Conservation  
Oregon Department of Fish and Wildlife  
Pennsylvania Game Commission  
South Carolina Department of Natural Resources  
South Dakota Department of Game, Fish and Parks  
Tennessee Wildlife Resources Agency  
Texas Parks and Wildlife Department  
Utah Department of Natural Resources  
Utah Division of Wildlife Resources  
Vermont Fish and Wildlife Department  
Virginia Department of Game and Inland Fisheries  
Washington Department of Fish and Wildlife  
Wisconsin Department of Natural Resources  
Washington Department of Natural Resources  
West Virginia Division of Natural Resources

**Other State Environmental Agencies (non-fish and wildlife agencies)**

Florida Department of Environmental Protection  
Florida Water Management Districts  
Georgia Environmental Protection Division  
Illinois Nature Preserves Commission  
Kentucky State Nature Preserves Commission  
Maine Natural Areas Program  
Michigan Department of Environmental Quality  
New Hampshire Natural Heritage Bureau  
New York Natural Heritage Program  
New York State Office of Parks, Recreation and Historic Preservation  
Ohio Department of Natural Resources Division of Soil and Water Conservation  
Ohio Department of Natural Resources Division of Natural Areas and Preserves  
Oklahoma Department of Environmental Quality  
Oklahoma Natural Heritage Inventory  
Oregon Watershed Enhancement Board  
Tennessee Department of Environment and Conservation  
Utah Department of Environmental Quality  
West Virginia Department of Environmental Protection  
Florida Division of Forestry  
Georgia Forestry Commission  
Pennsylvania Department of Conservation and Natural Resources  
South Carolina Forestry Commission  
Alabama Aquatic Biodiversity Center

**Other State Agencies**

Maine State Planning Office  
Michigan Department of Agriculture

**Other State Agencies (continued)**

Utah Department of Agriculture and Food  
Utah Department of Community and Culture  
Utah Energy Office  
Utah School and Institutional Trust Lands Administration

**State Transportation Agencies**

California Department of Transportation  
Georgia Department of Transportation  
Maine Department of Transportation  
New York State Thruway Authority  
New York State Department of Transportation  
Oregon Department of Transportation  
Vermont Agency of Transportation

**Local/Regional Government**

Adirondack Park Agency  
Mid-America Regional Council  
Soil and Water Conservation Districts  
Association of County Governments in Georgia  
County government  
City government  
community leaders  
East-West Gateway Council of Governments  
Hampton Township, MI  
Iowa County Highway Department  
Jefferson County, MO  
local conservation commissions  
local government  
Port of Olympia, WA  
Port of Tacoma, WA  
sewage districts  
Utah Association of Conservation Districts  
Volusia County, FL  
Walker County, GA

**Local Parks**

Franklin County Metroparks  
Jackson and Platte County Parks and Recreation Departments  
Knox County Metroparks  
Fairfield Cuntly Metroparks

**Schools****Advisory Committees**

Delaware Open Space Council



**Advisory Committees (continued)**

Maine's Fish and Wildlife Advisory Council  
sage grouse working groups, Utah

**Conservation Nongovernmental Organizations**

American Cave Conservation Association  
Audubon (state chapters)  
Cave Research Foundation  
Conservation Fisheries  
Conservation Northwest  
Conserve Wildlife Foundation of New Jersey  
Cornell Lab of Ornithology  
Defenders of Wildlife  
Delta Waterfowl  
Ducks Unlimited  
Environmental Defense Fund  
Georgia Conservancy  
Georgia Wildlife Federation  
Lookout Mountain Conservancy  
Michigan Nature Association  
Michigan United Conservation Clubs  
Missouri Prairie Foundation  
Montana Wildlife Federation  
National Audubon Society  
National Wild Turkey Federation  
National Wildlife Federation  
Ozark Ecological Restoration  
Pennsylvania Society for Ornithology  
Pheasants Forever  
Prairie Enthusiasts  
Prairie Smoke  
Prescribed Fire Council  
Quail Unlimited  
Rocky Mountain Bird Observatory  
Rocky Mountain Elk Foundation  
Ruffed Grouse Society  
Tennessee Aquarium Research Institute  
The Conservation Fund  
The Nature Conservancy  
The Open Space Council  
Theodore Roosevelt Conservation Partnership  
Three Rivers Avian Center  
Trout Unlimited  
Tumbling Creek Cave Foundation  
Utah Resources Conservation and Development Council  
Vermont Natural Resources Council

**Conservation Nongovernmental Organizations (continued)**

Wisconsin Wildlife Federation  
Xerces Society  
watershed councils  
Western Navarro County Bobwhite Initiative  
Wildlife Management Institute  
Citizen-Based Monitoring Network of Wisconsin

**Conservation Coalitions**

Grasslands Coalition  
LaBarque Creek Watershed Partners  
Mid Trinity Basin Conservation Foundation  
Nebraska Partnership for All-Bird Conservation  
Northern Forest Alliance  
Playa Lakes Joint Venture  
Rainwater Basin Joint Venture  
Trinity Basin Conservation Foundation  
U.S. Partners in Flight Program

**Land Trusts**

Cascade Land Trust  
Five Valleys Land Trust  
Colorado Coalition of Land Trusts  
Gathering Waters Conservancy  
Georgia Land Trust  
Heart of the Rockies Initiative  
land trusts  
Maine Coast Heritage Trust  
Minnesota Land Trust  
Montana Association of Land Trusts  
Native Prairie Association  
Natural Resources Trust  
Northern Prairie Land Trust  
Open Space Institute  
Ozark Regional Land Trust  
Southern Appalachian Highlands Conservancy  
Trust for Public Land

**Research Nongovernmental Organizations**

Ecosystem Management Research Institute  
Point Reyes Bird Observatory  
Tall Timbers Research Station

**Museums**

Carnegie Museum  
San Noble Museum of Natural History

## **Zoos/Aquariums**

Columbia Zoo and Aquarium

## **Foundations (providing funding)**

Benwood Foundation  
Doris Duke Charitable Foundation  
Iowa Natural Heritage Foundation  
Lyndhurst Foundation  
Missouri Conservation Heritage Foundation  
Montana Community Foundation  
National Fish and Wildlife Foundation  
Tennessee Heritage Conservation Trust Fund

## **Universities**

Auburn University  
Eastern Kentucky University  
Fort Hays State University  
Indiana State University  
Missouri Resource Assessment Program  
University of Florida  
University of Kansas at Lawrence  
University of Oklahoma  
University of South Carolina  
University of the South  
University of Wisconsin Center for Limnology  
University of Wisconsin Platteville  
North Carolina State University College of Veterinary Medicine  
Oklahoma State University  
Oregon State University  
Purdue University  
Rogers State University  
The Ohio State University  
The Pennsylvania State University  
West Virginia University

## **Extension**

Michigan State University Extension  
University of New Hampshire Cooperative Extension Program  
University of Wisconsin Extension  
Utah State University Extension

## **Industry/Business**

Agriculture industry  
Ranching industry  
BASF

**Industry/Business (continued)**

Conservation Forestry LLC  
Duke Energy  
International Paper  
Lyme Timber Company  
Montana Innkeepers Association  
Oil and gas industry  
Paper companies  
Piatt Castles  
Timber industry  
Tourism industry  
Travel Montana

**Environmental Consultants**

Gregory Lipps LLC  
Ozark Underground Laboratory

**Individuals/Landowners**

citizens  
landowners  
sportsmen's organizations

**Landowners' Coalitions**

Clifftop Alliance  
farm bureau  
New York Forest Owners' Association  
private landowner associations

## **Appendix C**

### **Project Advisory Committee**

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